

TFB Worksheet

Worksheet 310
4/19/2013

Customer P.O. _____

Eclipse S.O. / Quote _____

Customer _____

Eclipse Rep _____

Customer Signature _____

Eclipse Rep Signature _____

Date _____

Date _____

NOTICE

- Quote # and Revision Level must be provided
- For more information or recommendations see Design Guide 310 or Datasheet 310

1. Burner Size

030 075 200

2. Fuel Type

Natural Gas Propane Butane

3. Flame Detection

No Flame Safety

UV Scanner Adapter

Flame Rod (only available for sizes 030 and 075 without recuperation)

4. Thread Connection Type

NPT BSP

5. Gas Inlet

0 90 180 270

6. Furnace Temperature

°F (°C)

7. Control Method

8. Furnace Wall Thickness (W)

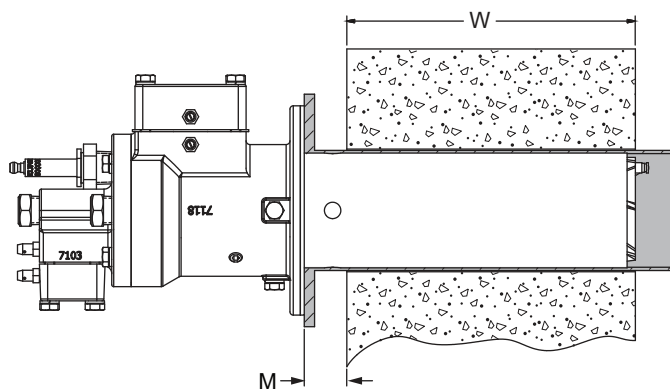
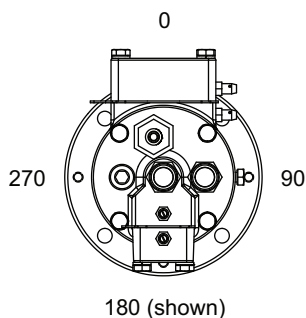
inches (mm)

9. Mounting Flange Length (M)

inches (mm)

10. Burner Tube Length (W + M)

inches (mm)



11. Recuperation

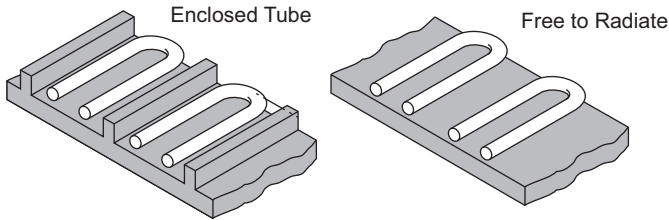
Used

Not Applicable

12. Tube Information

Enclosed

Free to Radiate



13. Tube Length (L)

inches (mm)

14. Tube Diameter (OD)

inches (mm)

15. Number of Tube Legs (n)

16. Tube Surface Area

sq. in. (mm²)

Tube surface area = $OD \times \pi \times n \times L$

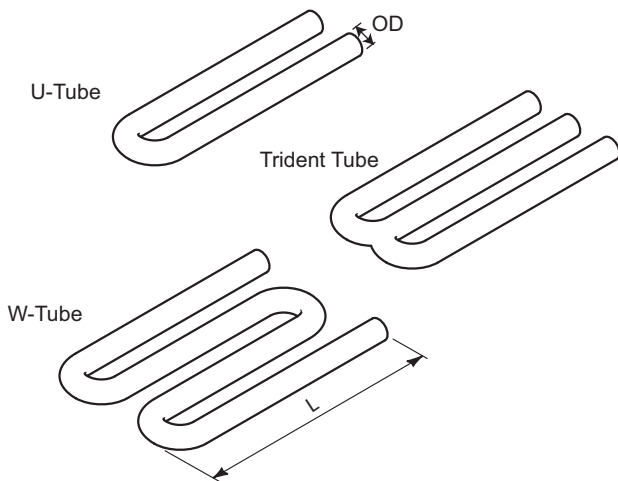
OD = the outside diameter of the tube in inches

$\pi = 3.142$

n = number of tube legs

- 2 for a U-Tube
- 3 for a Trident Tube
- 4 for a W-Tube

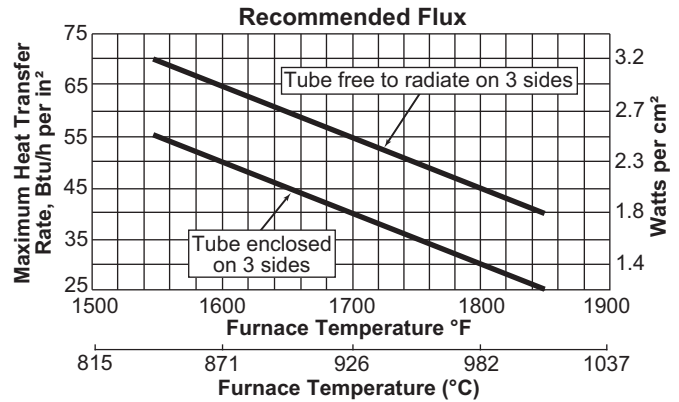
L = the total length of each leg in inches



17. Net Tube Output

Btu/h (kW)

(Flux) x (Tube Surface Area)



18. Maximum Gross Input

Btu/h (kW)

$$\frac{\text{Net Tube Output}}{\text{Efficiency}} = \text{Gross Burner Input}$$

Table 3.1 Estimated Gross Efficiency*

Furnace Chamber Temperature	Without Recuperator (Ambient Air)	With Recuperator (Preheated Air)
1000°F (538°C)	57%	71%
1300°F (704°C)	51%	68%
1550°F (843°C)	47%	65%
1650°F (899°C)	44%	64%
1750°F (954°C)	41%	63%
1850°F (1010°C)	39%	62%

*Actual efficiency will vary depending on gas type, recuperator, excess air, piping losses, etc.