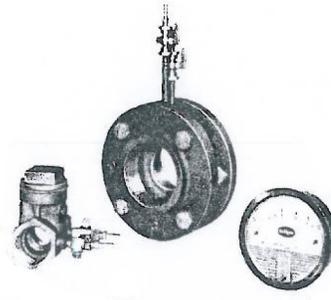


# Orifice Metering Systems

Version 1



## Introduction

Eclipse Orifice Metering Systems provide an inexpensive and accurate means of either measuring the flow rate of both gas and air or balancing flow rates to all burners in a combustion system.

## Installation

### **Flanged Body Orifice Meters (FOM)**

1. Inspect the orifice to make sure no dirt or other foreign matter has collected on the orifice during shipping or storage.
2. Locate the "FOM" in the system as shown in Figure 1.
3. Install standard 125# flanges on the pipe, leaving 1-9/16" between flange faces. See Figure 2.
4. On four bolt flanges, install the gaskets supplied and three bolts loosely, (Figure 3). On eight bolt flanges, install the gaskets supplied and six bolts loosely, (Figure 4).
5. Slide the orifice assembly between the flanges being careful not to damage the gaskets. The upstream side of the orifice plate has the orifice size stamped on the bent corner (Figure 5). The orifice plate will center the assembly.
6. Install the remaining flange bolts and tighten all bolts. Figure 6 illustrates the assembled unit.

### **Screw Body Orifice Metering (SOM)**

1. Inspect the orifice to make sure no dirt or other foreign matter has collected on the orifice during shipping or storage. While checking the orifice for dirt, identify the beveled or downstream side of the orifice plate. See Figure 5.
2. Locate the "SOM" in the system as shown in Figure 1 with the beveled side of the orifice plate facing downstream.

### **Pressure Monitoring Equipment**

1. If a differential pressure gauge is used (either direct mounted or remote) make sure the High Pressure side of the gauge is connected to the upstream side of the Orifice Meter.
2. Use tubing with a minimum inside diameter of 3/16" to connect to pressure taps to a remote gauge or manometer.
3. A pressure equalizing line with shut off cock should be installed between the impulse line on both constant (Figure 7) and portable (Figure 8) monitoring systems. This will protect the measuring instruments from damage due to pressure surge on start up and make it possible to check the instruments "Zero" without disconnecting lines.
4. On constant monitoring systems where there is the possibility of moisture in the lines, drip legs should be provided. See Figure 7.

## Flow Measuring

1. On constant monitoring systems, be sure the cock in the equalizer line is open before starting system. See Figure 7.
2. When portable measuring instruments is used, open the cock in the equalizer line before opening cocks in pressure lines. See Figure 8.
3. Always "Zero" portable measuring instruments before reading pressure differential. Constant monitoring instruments should also be zeroed periodically.
4. After the measuring instrument is properly connected to the lines and pressure line cocks are open, slowly close equalizer line cock until instrument starts to move. If instrument appears to be running off scale, re-open equalizer line cock and lower system flow. Repeat above procedure.
5. Refer to the flow curve furnished with each orifice to obtain scfh gas flow. The flow curve for gases is based on air, a 1 psig inlet pressure to the orifice, and 70°F temperature of flowing air. Appropriate multiplier are given for other inlet pressures, temperatures, and specific gravities.

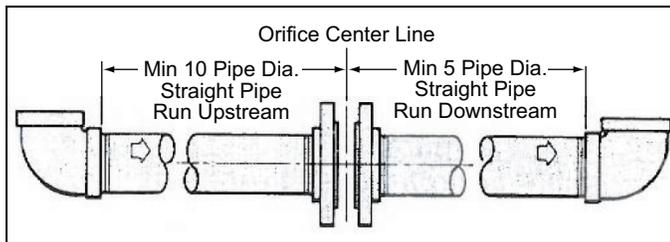


Figure 1.

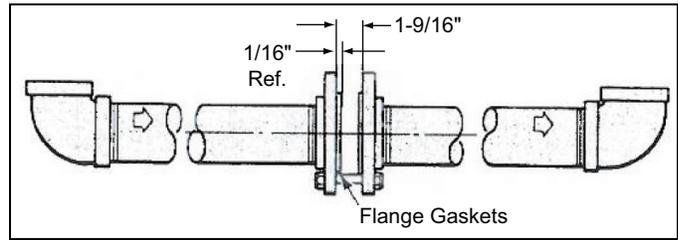


Figure 2.

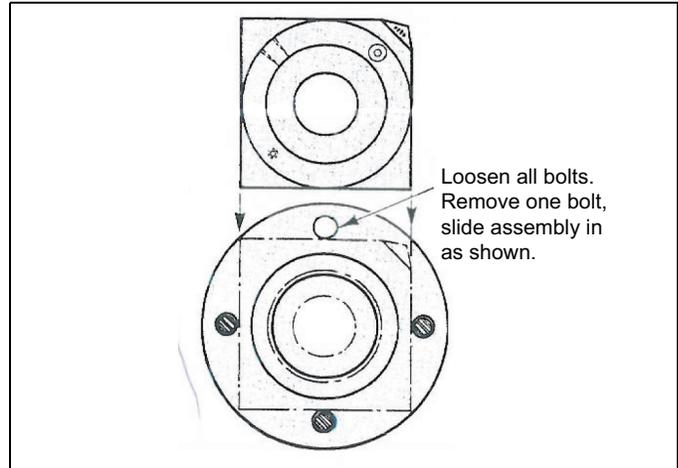


Figure 3.

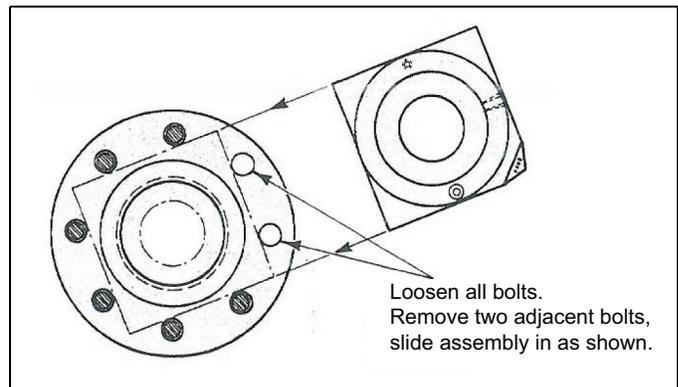
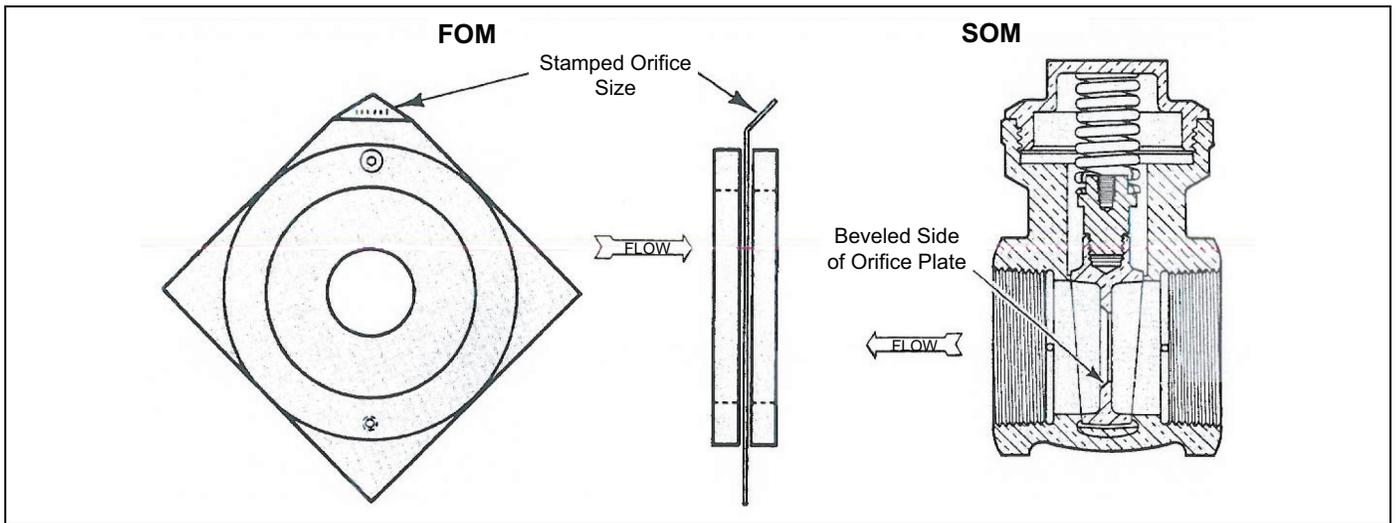
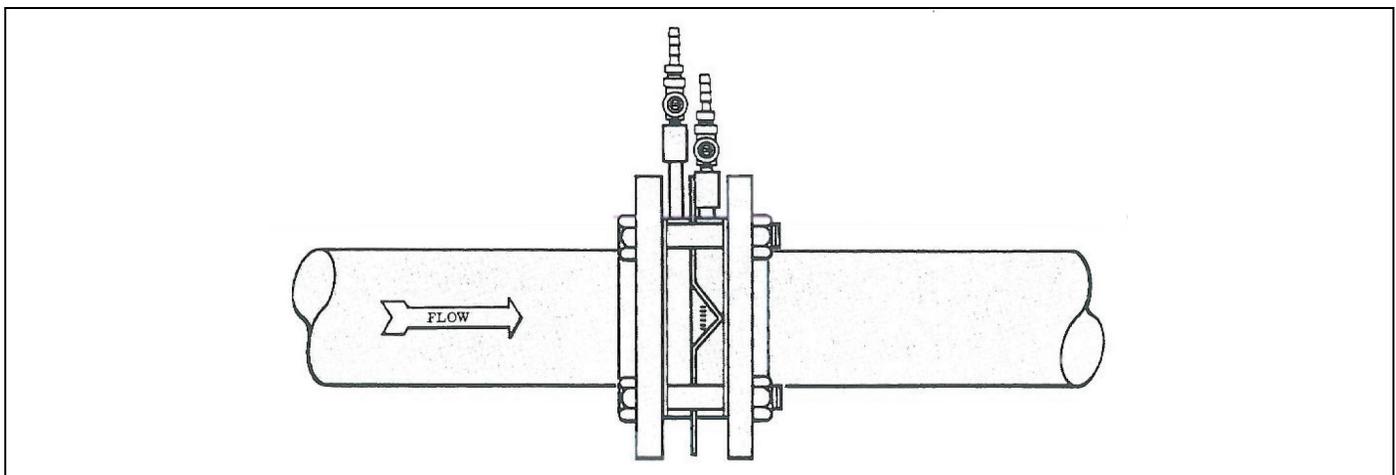


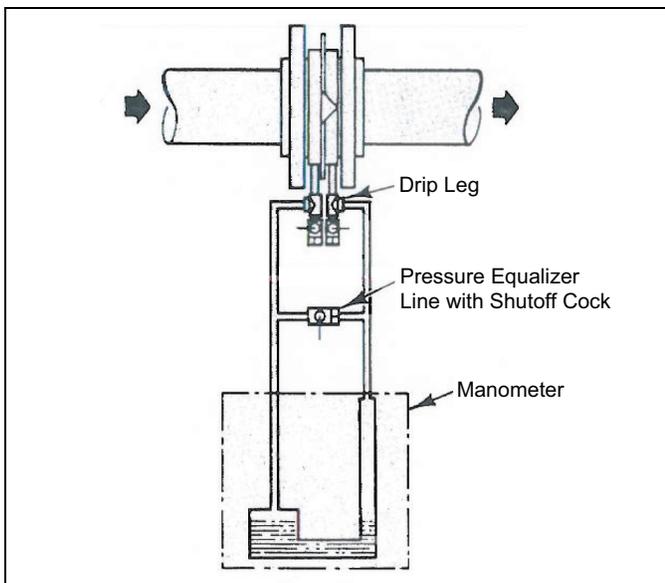
Figure 4.



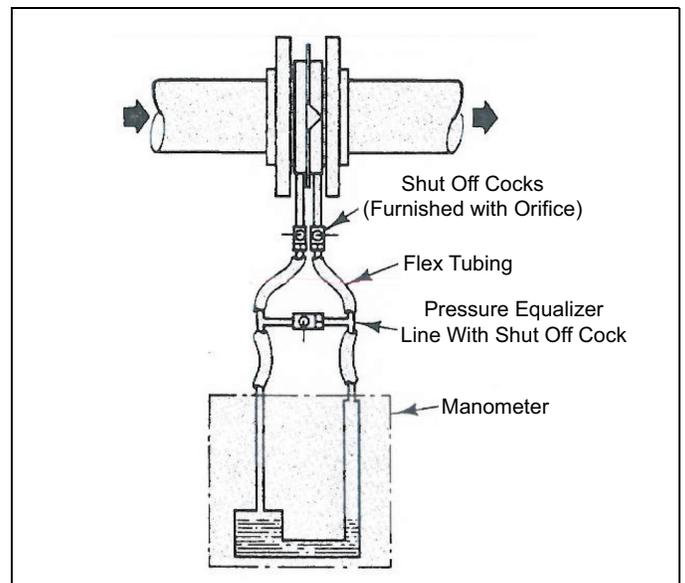
**Figure 5.**



**Figure 6.**



**Figure 7. Constant Monitoring System**



**Figure 8. Portable Monitoring System**

