

# Precautions | Metering Orifice

## CORRECTION FOR ONE OR MORE IS USUALLY REQUIRED

Example A. Burner catalog capacity = 10 000 cfh air. Gas flow set for 1000 cfh--no corrections. 1000 Btu/cf gas, 100°F combustion air, 80°F gas, 8697 in 16 psi gas line at sea level.

Point #1 correction:  $1.03 \times 1000000 \text{ Btu/hr} = \text{gas for } 1030000 \text{ Btu/hr}$

Point #2 correction:  $1.044 \times 1030000 \text{ Btu/hr} = \text{gas for } 1075300 \text{ Btu/hr}$

Point #4 correction:  $\frac{\text{air for } 1000000 \text{ Btu/hr}}{1.037} = \text{air for } 963000 \text{ Btu/hr}$

Net effect =  $\frac{1075300}{963000} = 1.117 \times 10 \text{ cf air/cf gas} = 11.17\% \text{ XSFuel}$

Example B. If the conditions in Example A are predictable, the proper 8697 metering orifice can be selected by dividing the required gas flow (for the burner air capacity) by 1.117. Thus, if 1000 cfh gas is needed, select a metering orifice for  $1000 \div 1.117 = 896 \text{ cfh}$  at  $3\frac{1}{2}$ " w.c. differential. The nearest orifice available is 8697-972. Use this and apply the correction as in Example A.

Example C. For setting air/fuel ratio on an existing 8697 installation with the conditions of Example A, divide the burner's catalog air capacity by 1.117 and set the gas flow accordingly. OR, multiply the nominal 8697 capacity by 1.117.

(Thus, an 8697-972, rated at 972 cfh gas with  $3\frac{1}{2}$ " w.c. differential, will have an effective gas flow, relative to the air flow, of  $972 \times 1.117 = 1086 \text{ cfh}$  gas at  $3\frac{1}{2}$ " w.c. This 1086 is not the true gas flow--just a figure relative to air flow for setting ratio.)

**WARNING:** Situations dangerous to personnel and property may exist with the operation and maintenance of any combustion equipment. The presence of fuels, oxidants, hot and cold combustion products, hot surfaces, electrical power in control and ignition circuits, etc., are inherent with any combustion application. Components in combustion systems may exceed 160°F (71°C) surface temperatures and present hot surface contact hazard. Fives North American Combustion, Inc. suggests the use of combustion systems that are in compliance with all Safety Codes, Standards, Regulations and Directives; and care in operation.

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