

Sizing 3065 Mixers Instructions

• For Standard 4651, 4659, and 4682 premix burners:

North American 4651, 4659, and 4682 premix burners share the same capacity rating system, but not every size premix burner capacity is available for every burner nozzle type, or suitable to operate at every pressure on the tables sizing tables. Consult the individual burner bulletin and sheets for details and operating stability range.

- Use **Table 1** to size a 3065 mixer for a single North American premix burner with zero governor control.
- Use **Table 2** to size a 3065 mixer for multiple North American premix burners, with zero governor control.

Mixer/burner pairings in **Table 1** and **2** maintain a relationship between mixer air orifice area and burner premix orifice area (about a 1:2.5 ratio for natural gas, and 1:2.9 for coke oven gas and manufactured gas).

• For other premix burners if the required burner flow is known:

- Determine how much mixture pressure is required for the premix burner that the 3065 is feeding by consulting burner instructions.
- Determine how much mixer air pressure is required for the fuel and control being used.
 - For zero governor control with Natural Gas, mixer air pressure (ap) = mp X 3.5
 - For zero governor control with Manufactured or Coke Oven Gas, mixer air pressure (ap) = mp X 4.0
 - For cross-connected regulator control with most fuels, and proper distance between the mixer and the burner, mixer air pressure (ap) = mp X 2 is adequate.
- To find mixer differential pressure (Pressure Drop Across Mixer), subtract mp from ap (dp = ap - mp)

Example, for zero governor control with Natural Gas with a burner that requires 6"w.c @ 6,000 cfh air mp = 6": ap=21"w.c.: dp = 15"w.c.

- Use **Chart 1** with the desired air flow and mixer dp to identify the correct 3065 mixer to match other premix burners for use with zero governor ratio control.

Note that Chart 1 does not list every size mixer available.

- To use **Table 3** the dp and burner air flow will need to be converted via the square root law to 1" or 30"w.c. pressure with the new corresponding air flow.

Example: dp = 15"w.c. @ 6,000 cfh air

To find air flow when dp = 1"w.c.

$$\text{Solution: } Q_2 = Q_1 \times \sqrt{\frac{\Delta P_2}{\Delta P_1}}$$
$$Q_2 = 6,000 \times \sqrt{\frac{1}{15}}$$
$$Q_2 = 1549 \text{ cfh air @ 1"}$$

Using **Table 3**: choose a 3065-5-16 mixer (with 2 1/2" air inlet), if 2" air piping is required then a 3065-4-S12 could be used.

• For premix burners if only the burner orifice area and required mixture pressure is known:

- Since flow through most premix burners is nearly proportional to open orifice area, 3065 mixers can be matched to premix burners by determining the open area and finding the closest matching 4682 burner size by area using Sheet 4600-1. Use that nozzle size with **Table 1** or **2**.