

A 4011 Pilot Set consists of tip, mixer, air valve, and gas valve. All sets are identical except for configuration of their 4021 tip:

**Spark** ignited tips: 4021-12 (threaded) and 4021-14 or -16 (slip-fit).

**Manually** ignited tips: 4021-11 (threaded) and 4021-13 or -15 (slip-fit).

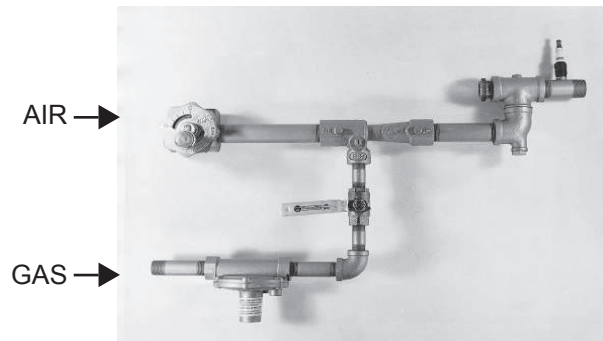
**Capacity:** 30,000 Btu/hr with 16 osi air, which provides 7"wc mixture pressure.

**Flame lengths:** see photographs below.

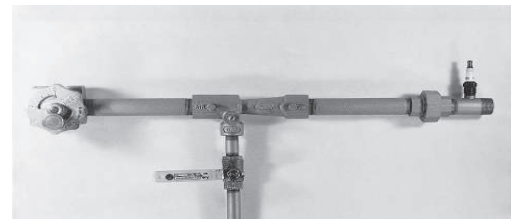
Maximum mixture pressures: 20"wc with 6000-volt transformer; 12"wc with 4067B Hot Rod.

Two of many possible piping configurations are shown at the right. A tip can be screwed directly into a 4031 Mixer. A 4021-11 or -12 threaded tip's discharge should be screwed only hand tight into a burner mounting, to allow it to be removed easily if required.

Multiple 4021 tips can be fed by a single 3065 Aspirator Mixer - see Sheet 4011-4 for details.

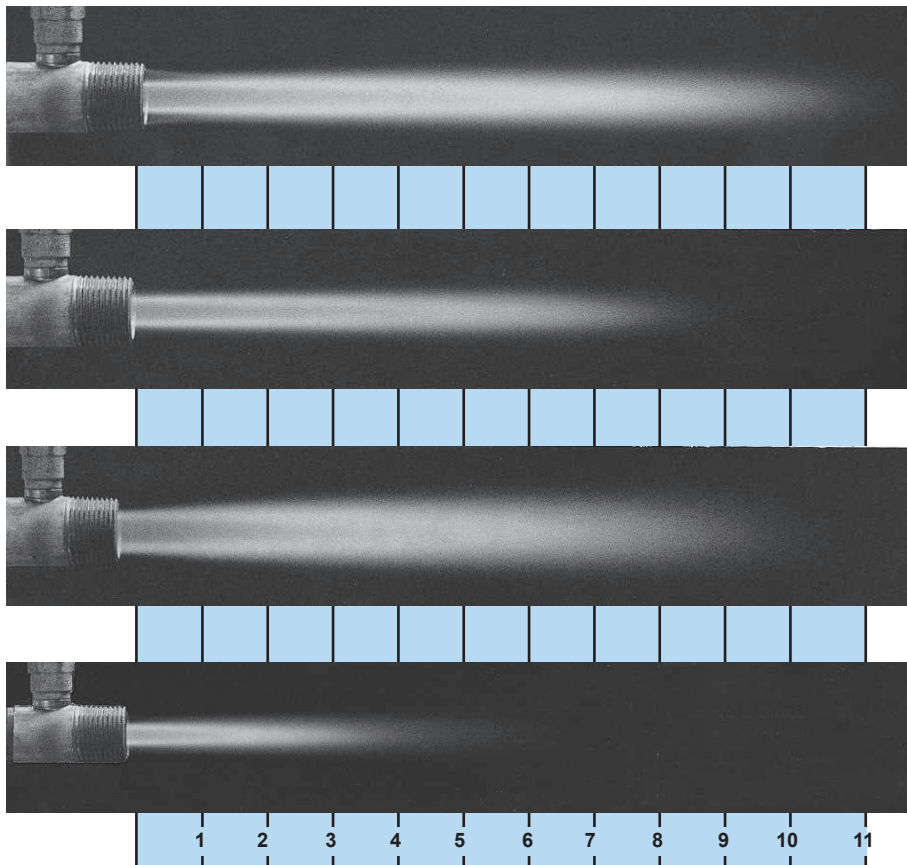


4011 Pilot Set with 4041 Universal Pilot Fitting, 7350 Regulator, and piping.



4011 Pilot Set with piping, including a union.

**4021 Pilot Flames**



Stoichiometric ratio and 7"wc mixture pressure, produced by 16 osi air into 4031 Mixer -- 30,000 Btu/hr.

The same 7"wc mixture pressure with air/gas ratio set at 25% excess air.

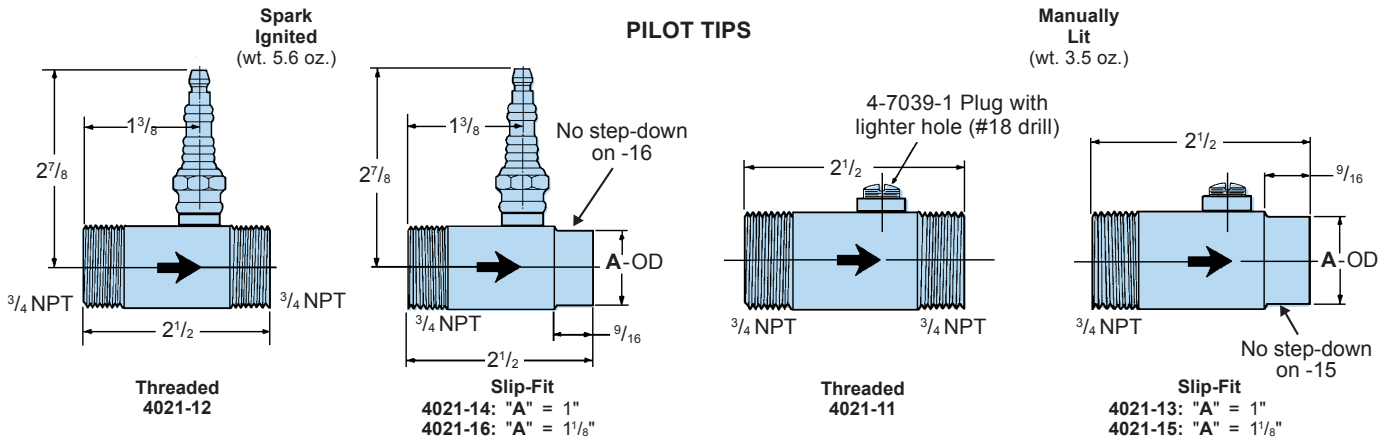
The same 7"wc mixture pressure with air/gas ratio set at 15% excess fuel.

Stoichiometric ratio and 1"wc mixture pressure (12,500 Btu/hr).

Scale: length in inches

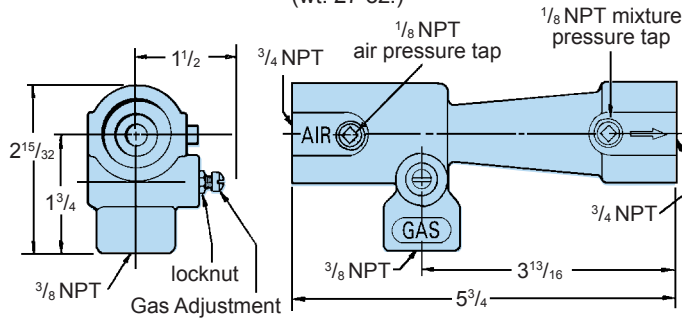
**WARNING:** Situations dangerous to personnel and property may exist with the operation and maintenance of any combustion equipment. The presence of fuels, oxidants, hot and cold combustion products, hot surfaces, electrical power in control and ignition circuits, etc., are inherent with any combustion application. Parts of this product may exceed 160F in operation and present a contact hazard. Fives North American Combustion, Inc. urges compliance with National Safety Standards and insurance Underwriters recommendations, and care in operation.

**4011 SET COMPONENTS**  
(and optional universal fitting)



**4031 MIXER**

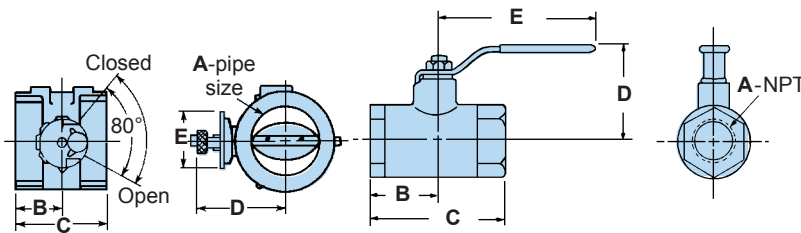
(wt. 27 oz.)



The 4031 Mixer's built-in gas adjustment is a precision needle valve, using 14 full turns from closed to open. It sets desired gas flow at pressures between zero and 24 osi. The 1122-0 Air Valve sets pilot firing rate.

The inlet air tap or the air/gas mixture pressure tap on the 4031 mixer should be cross connected to the pilot gas regulator so that the pilot's air/gas ratio will not be affected by changes in backpressure at the pilot tip. The inlet pressure to the pilot gas regulator should be at least 2 osi greater than the connected pilot air or mixture pressure.

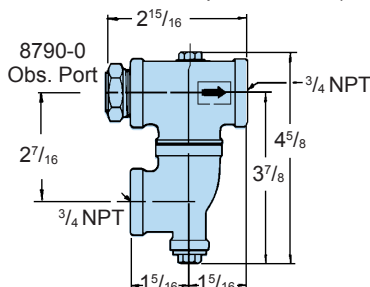
**VALVES**



Valve	A	B	C	D	E	wt, lb
1122-0 (air)	$\frac{3}{4}$	$1\frac{3}{16}$	$2\frac{3}{8}$	$2\frac{3}{4}$	3	2
1821-02 (gas)	$\frac{3}{8}$	$1\frac{1}{32}$	$2\frac{1}{16}$	$1\frac{3}{4}$	$3\frac{7}{8}$	0.5

**4041 UNIVERSAL PILOT FITTING**

optional (wt. 19.5 oz.)



A 4041 Fitting is piped between tip and mixer to allow mixer to be installed in a vertical or horizontal line regardless of pilot tip angle.

It also takes the place of a union for tip removal, and has an observation port for viewing. Pressure drop across it is negligible.

**Adjusting Pilots**

In general, premix pilots are adjusted by sight. A 4021 Pilot Tip with air-gas mixture on stoichiometric ratio produces a sharp, forceful flame with a well defined light blue inner cone and a deeper blue outer flame envelope.

This flame produces a moderate amount of noise, which decreases when adjusted toward the rich limit. Also, a long, bushy, yellow or orange tipped flame envelope or a green colored flame denotes rich ratio.

A short, pale blue or violet flame indicates a lean ratio.

Rich or lean ratios may cause pilot to have insufficient flame length or drive to satisfy a flame detector and/or to ignite the main fuel.

To order pilot set, specify set designation with appropriate tip suffix.

*Example:* 4011-16 Pilot Set (with 4021-16 spark ignited, slip-fit tip)

DIMENSIONS SHOWN ARE SUBJECT TO CHANGE. PLEASE OBTAIN CERTIFIED PRINTS FROM FIVES NORTH AMERICAN COMBUSTION, INC. IF SPACE LIMITATIONS OR OTHER CONSIDERATIONS MAKE EXACT DIMENSION(S) CRITICAL.