



J Series Pilot Burners/Y90 Series Inlet Fittings

J Series Pilot Burners/Y90 Series Inlet Fittings are used with Intermittent Pilot Ignition (IPI) and Standing Pilot Ignition (SPI) systems. Various pilot burner configurations, inlets, and flame sensors are available. Consult BASO Gas Products regarding pilot/inlet/sensor assembly details required for your specific application.



Figure 1: Intermittent Pilot Burners with Teflon® Wire

Features and Benefits	
<input type="checkbox"/> Teflon Wire (on select models at this time)	Eliminates offgassing and has a high resistance to thermal degradation
<input type="checkbox"/> Alumina Ceramic (on select models at this time)	Provides improved ceramic strength and increases overall durability of the pilot assembly
<input type="checkbox"/> Compact Design and a Choice of Mounting Brackets	Permits installation in a variety of IPI and SPI applications
<input type="checkbox"/> Choice of Tips for Flame Configurations	Maximizes main burner ignition performance
<input type="checkbox"/> Unique Dual Orifice Hole Design	Provides for better flame stability over a wider pressure range
<input type="checkbox"/> Factory-assembled Package	Provides pilot burner, inlet, and flame sensor for easy installation

Application

Standing Pilot Application

A pilot burner consists of a tip (also referred to as a directional hood), mounting bracket, and air opening (see Figure 2). The main functions of a pilot burner in a standing pilot application are to:

- provide a flame pattern that impinges on the thermocouple, resulting in sufficient output to keep the safety shutoff device energized
- light the main burner

The pilot burner tip directs the flame toward the main burner for ignition and towards the thermocouple to actuate the safety shutoff device.

The mounting bracket attaches the pilot burner close to the main burner and provides positioning of the thermocouple. Common mounting brackets allow for bulkhead, single-axis, and multi-axis mounting. The aeration opening provides a source of air, which is necessary for proper combustion.

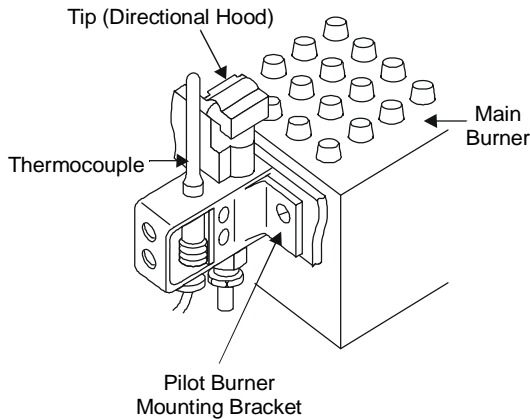


Figure 2: Typical Standing Pilot Application

Intermittent Pilot Application

An intermittent ignition pilot burner assembly consists of a tip (directional hood), mounting bracket, aeration opening, spark electrode rod, cables, and connections (see Figure 3). At the equipment manufacturer's request, a flame sensor can be included. The main functions of a pilot burner in an intermittent pilot application are to:

- ignite the pilot gas
- sense the pilot flame
- light the main burner

The intermittent pilot burner is constructed so that the spark gap (distance between igniter rod and ground) is positioned within the pilot gas stream. The tip directs the flame toward the main burner and flame sensor, and provides an electrical path to ground, completing the flame sense circuit.

The mounting bracket provides support for the flame sensor and electrode assembly, properly positioning the pilot tip to the main burner.

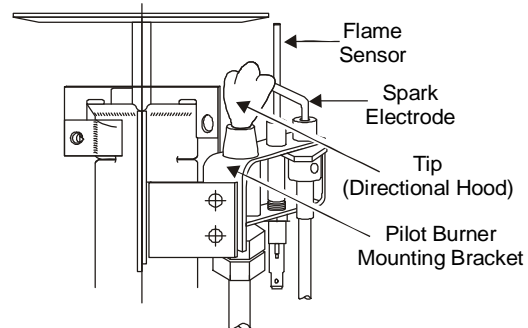


Figure 3: Typical Intermittent Pilot Application

Pilot Burner Tip Configurations

BASO Gas Products manufactures various types of pilot burner tips (directional hoods). Figure 4 illustrates available tip configurations and their flame patterns.

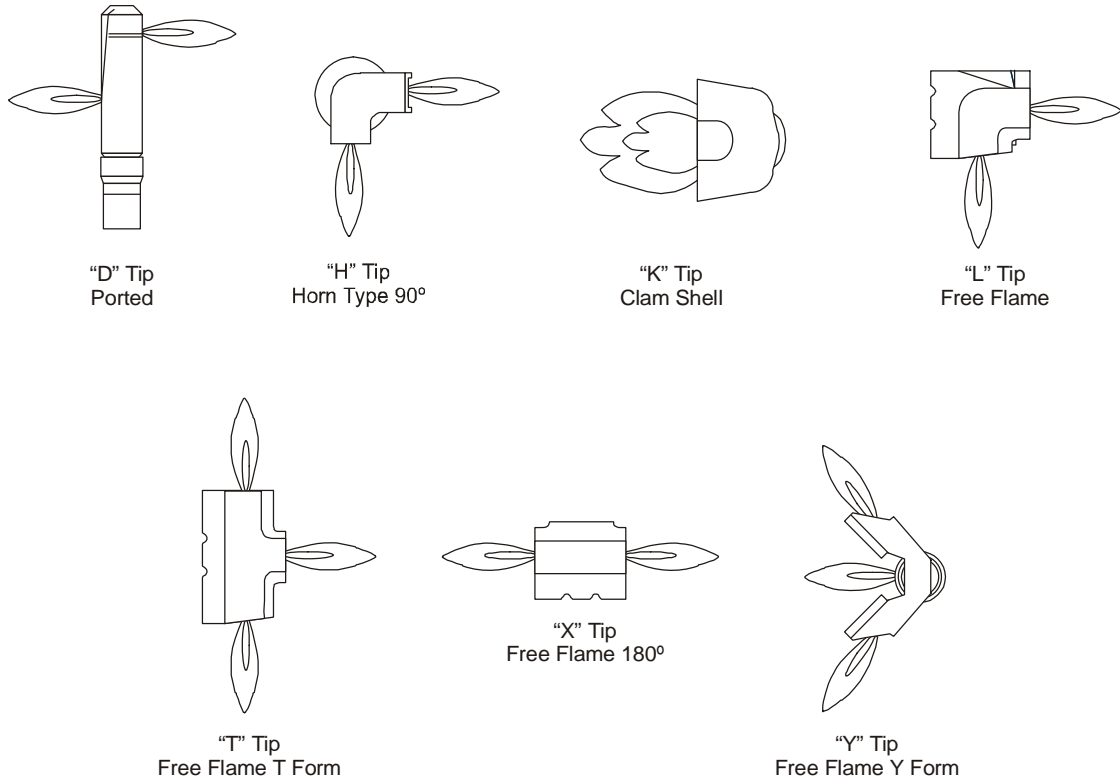
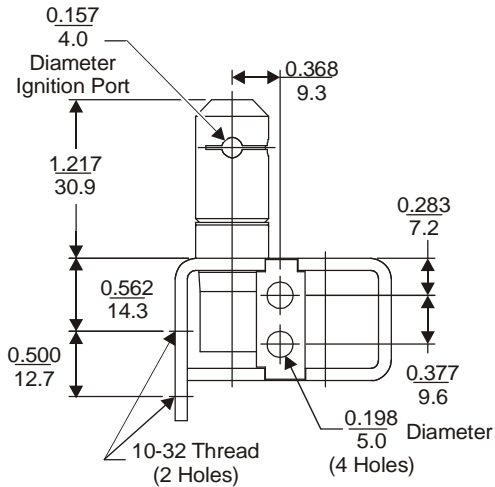
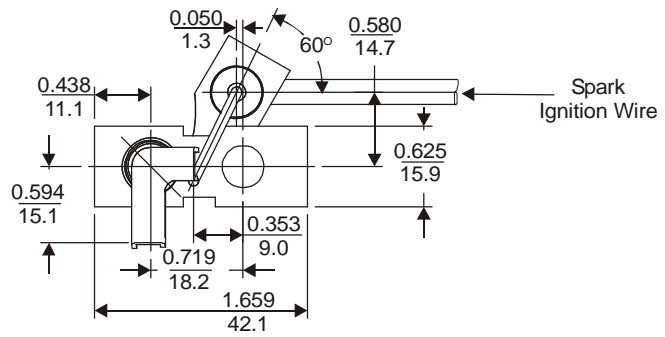


Figure 4: Tip Configurations and Flame Patterns

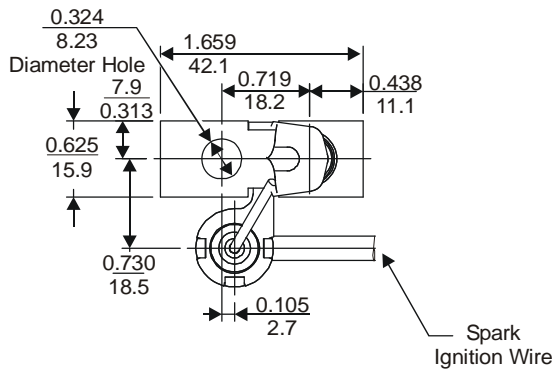
Pilot Burner Tip Configurations Dimensions



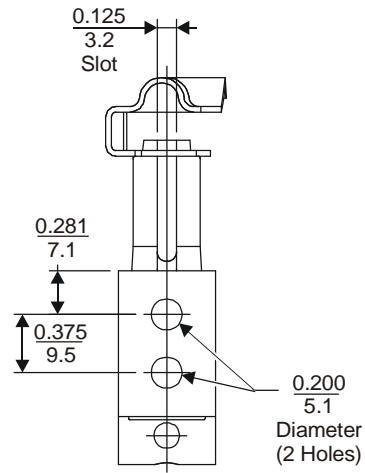
“D” Tip Standing Pilot Side View



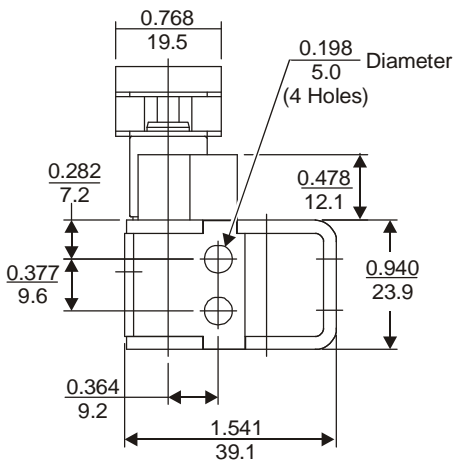
“H” Tip Intermittent Pilot Top View



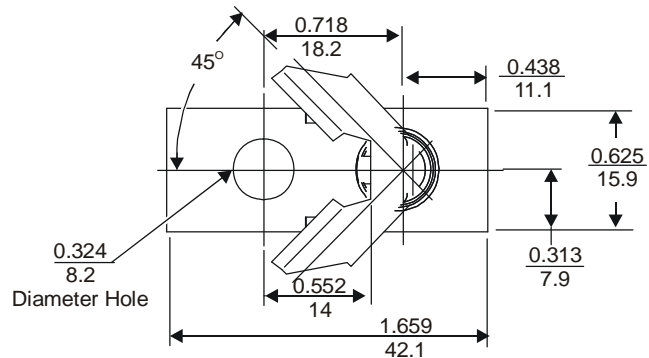
“K” Tip Intermittent Pilot Top View



“L” Tip Standing Pilot End View



“X” Tip Standing Pilot Side View



“Y” Tip Standing Pilot Top View

Figure 5: Dimensions of “D” Style Mounting Bracket with Available Tip Placements, in. (mm)

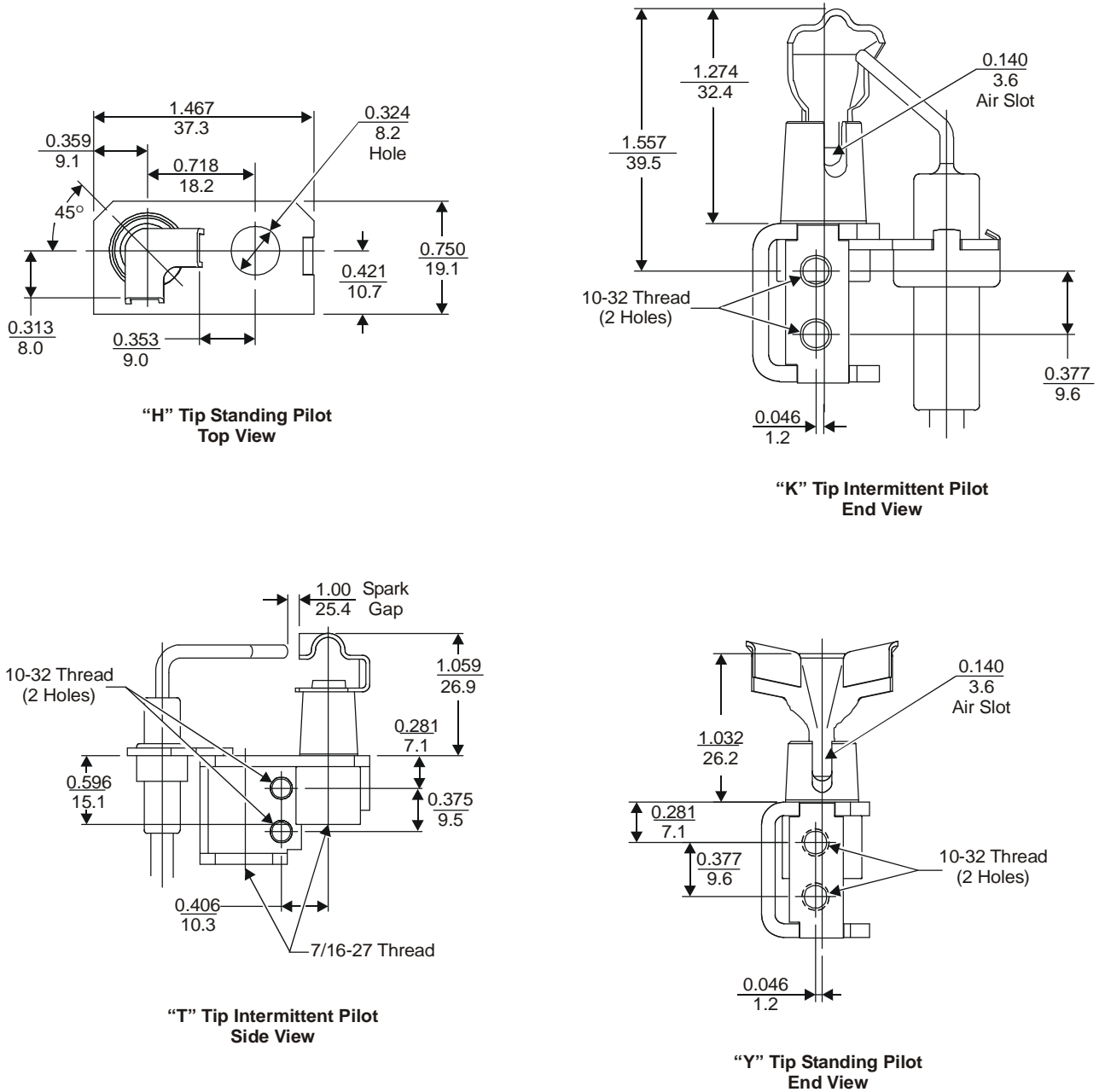
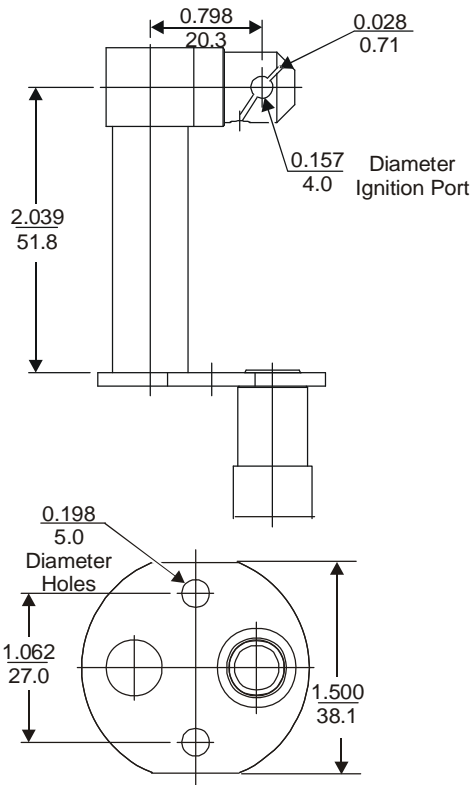
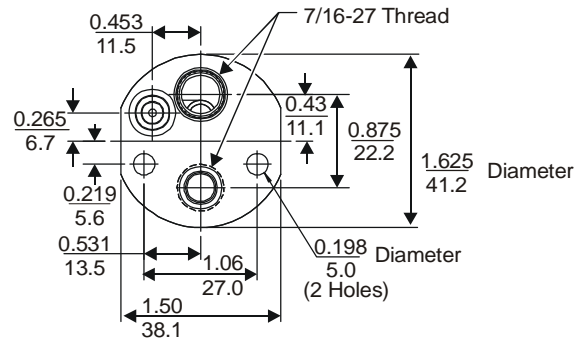
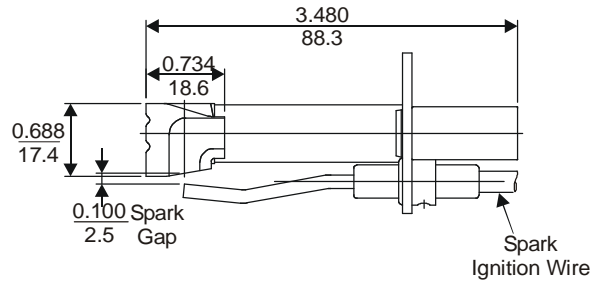


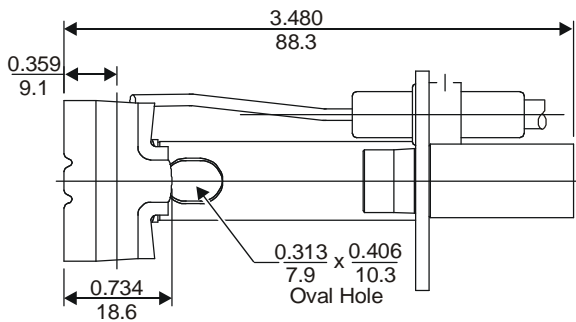
Figure 6: Dimensions of "E" Style Mounting Bracket with Available Tip Placements, in. (mm)



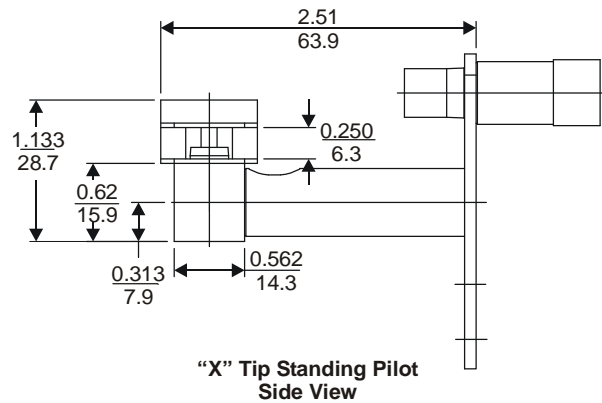
"D" Tip Standing Pilot Side View



"L" Tip Intermittent Pilot Top View

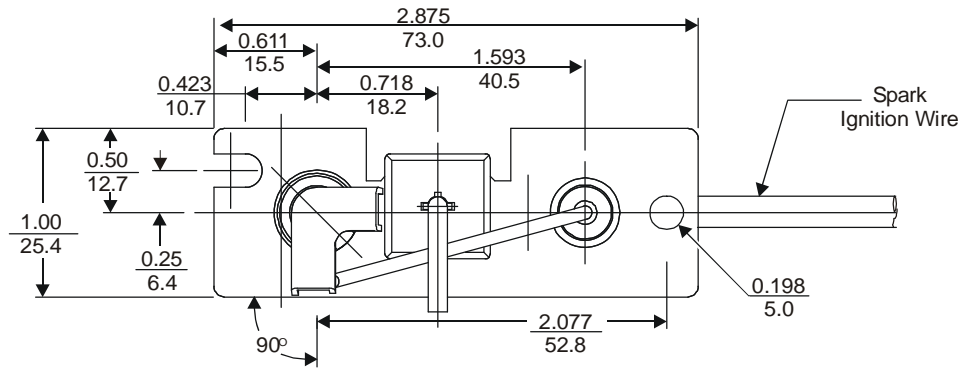


"T" Tip Intermittent Pilot Top View

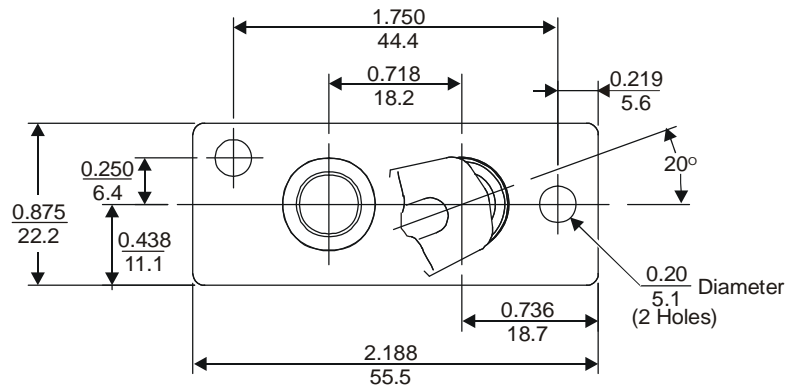


"X" Tip Standing Pilot Side View

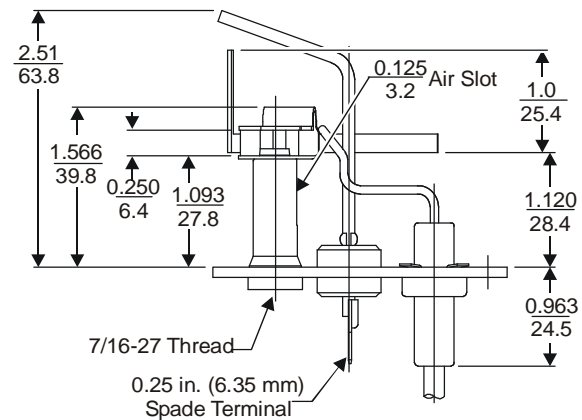
Figure 7: Dimensions of "F" Style Mounting Bracket with Available Tip Placements, in. (mm)



"H" Tip Intermittent Pilot
Top View

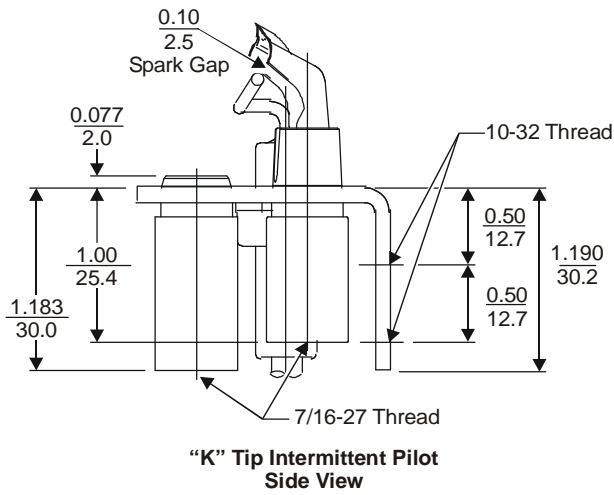


"K" Tip Standing Pilot
Top View

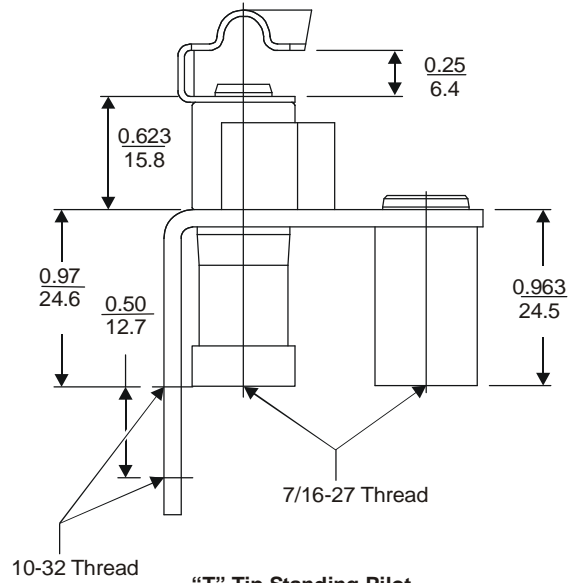


"X" Tip Intermittent Pilot
Side View

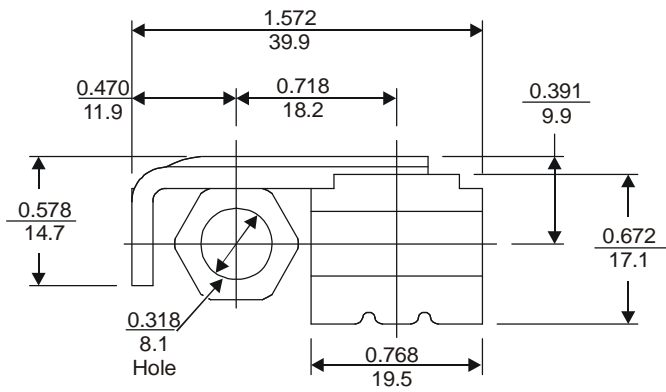
Figure 8: Dimensions of "H" Style Mounting Bracket
with Available Tip Placements, in. (mm)



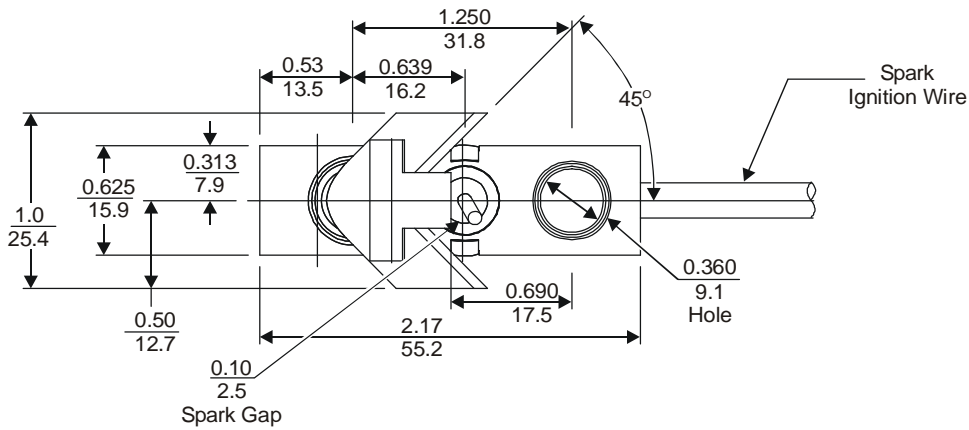
**"K" Tip Intermittent Pilot
Side View**



**"T" Tip Standing Pilot
Side View**



**"X" Tip Standing Pilot
Top View**



**"Y" Tip Intermittent Pilot
Top View**

**Figure 9: Dimensions of "L" Style Mounting Bracket
with Available Tip Placements, in. (mm)**

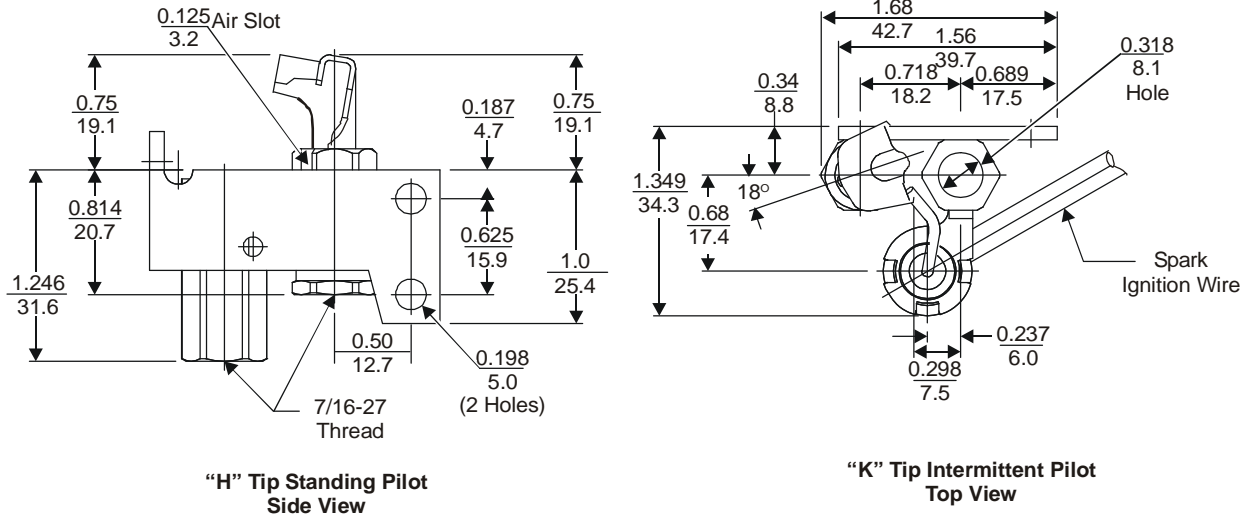


Figure 10: Dimensions of "V" Style Mounting Bracket with Available Tip Placements, in. (mm)

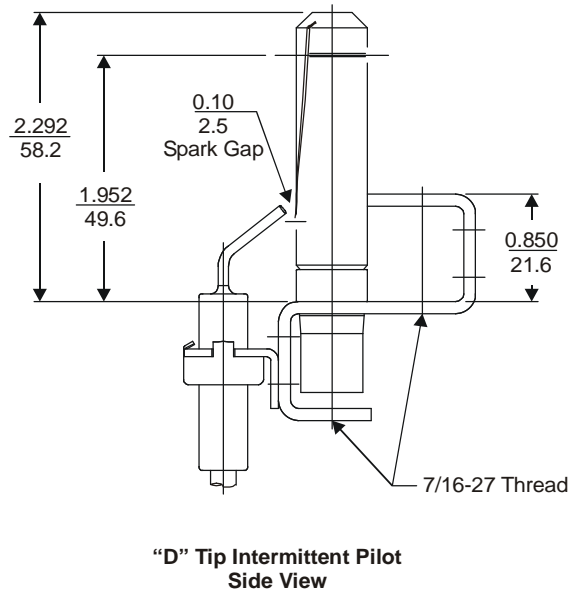


Figure 11: Dimensions of "Z" Style Mounting Bracket with Available Tip Placement, in. (mm)

Pilot Burner Ordering Information

Pilot burners can be ordered with or without an inlet fitting that controls the flow of gas to the pilot burner. Figure 12 shows example part numbers for ordering pilot burners with or without an inlet fitting.

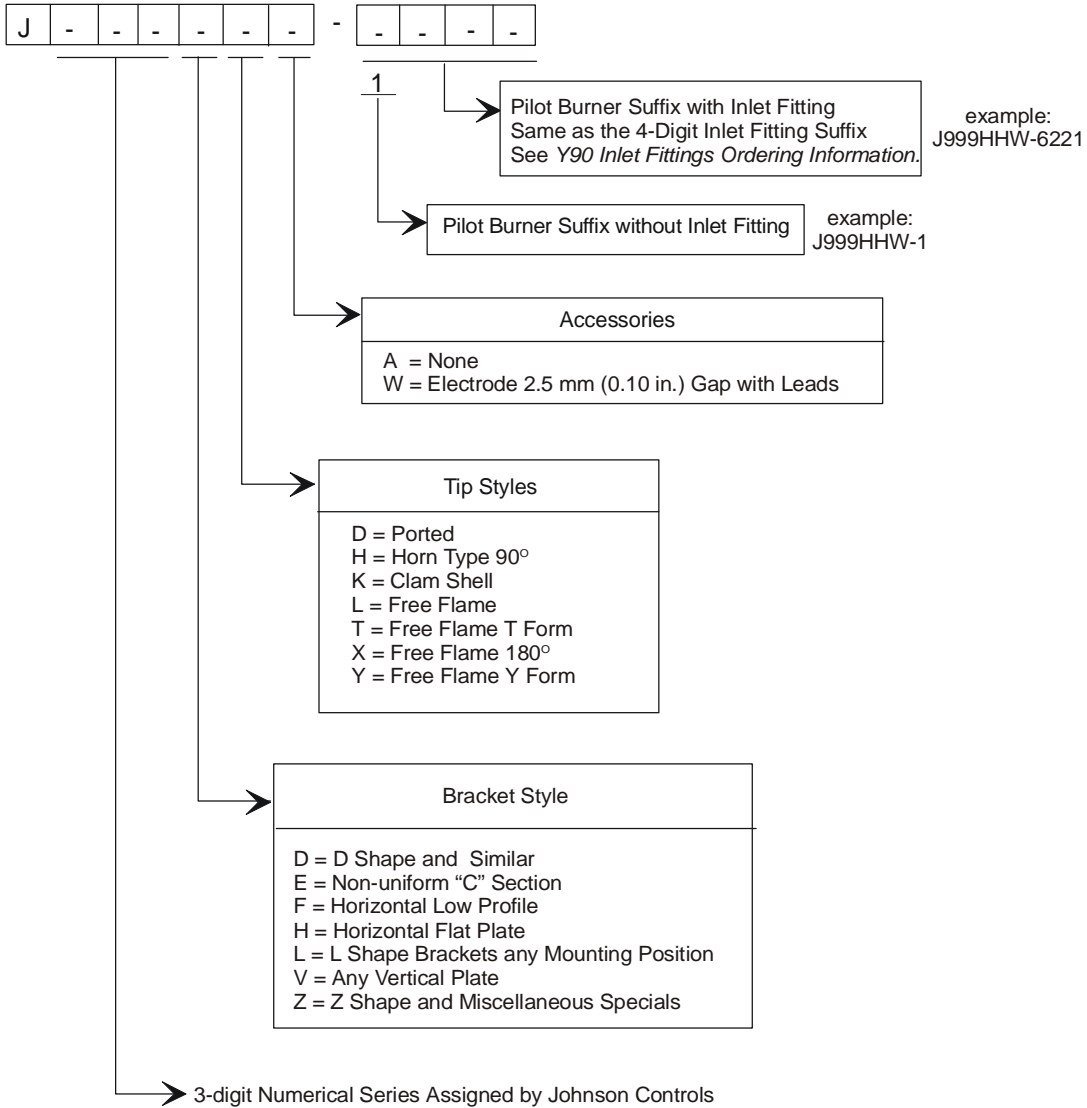


Figure 12: Pilot Burner Ordering Matrix

Y90 Inlet Fittings

The Y90 inlet fitting controls the flow of gas to a pilot burner. The orifice hole size and counterbore/coining, along with the applied gas pressure, determine flame size and characteristics.

Pilot burner inlet fittings consist of an inlet tip (containing the orifice holes) and a threaded inlet body allowing connection of the pilot line. The orifice holes are used to direct and control the flow of gas to a pilot burner. The inlet fitting positions the orifice holes in relation to the pilot burner's aeration opening and pilot tip.

The majority of inlet fittings BASO Gas Products manufactures have two orifice holes offset at an angle. In an inlet fitting with counterbore/coining, the pilot gas streams intersect. The turbulence caused by this intersection provides better gas and air mixing for combustion. Figure 13 illustrates the counterbore/coining of an orifice. The two holes are drilled at 90° to the counterbore/coining surface.

The gas flow rate and pattern are dependent upon the gas pressure, drill size, counterbore/coining, and wall thickness (or web) of the inlet tip. Various orifice sizes are available for use with natural gas, Liquefied Petroleum (LP) gas, butane gas, and other gases. Numerous inlet tips and inlet bodies are available (see *Y90 Inlet Fittings Ordering Information*). Contact BASO Gas Products regarding inlet fitting details required for your specific application.

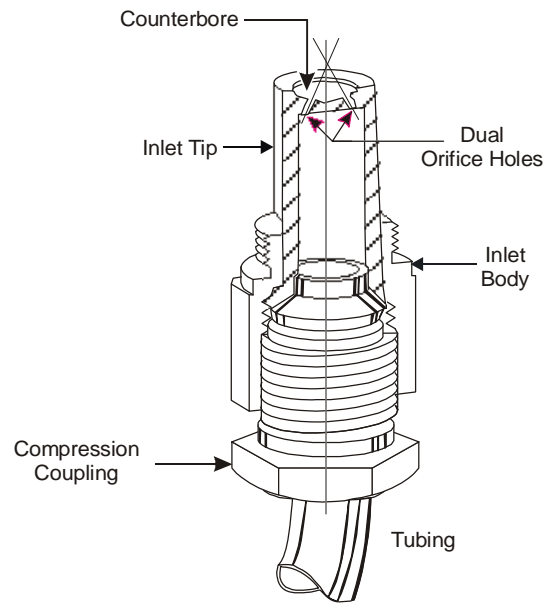


Figure 13: Counterbore/Coining of Orifice

Y90 Inlet Fittings Dimensions

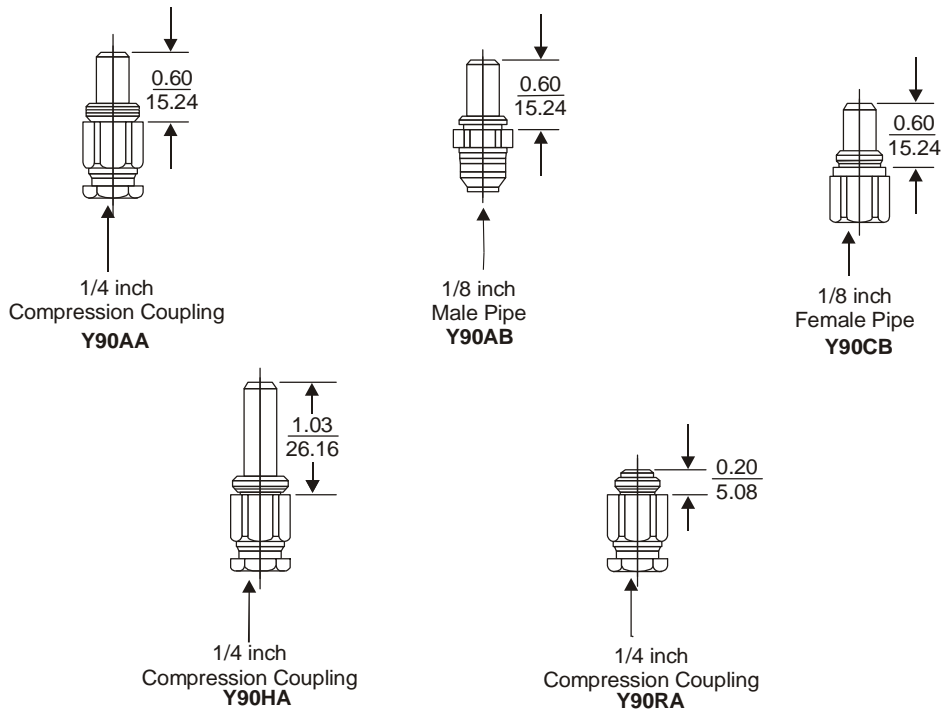


Figure 14: Y90 Inlet Fitting Dimensions, mm (in.)

Y90 Inlet Fittings Ordering Information

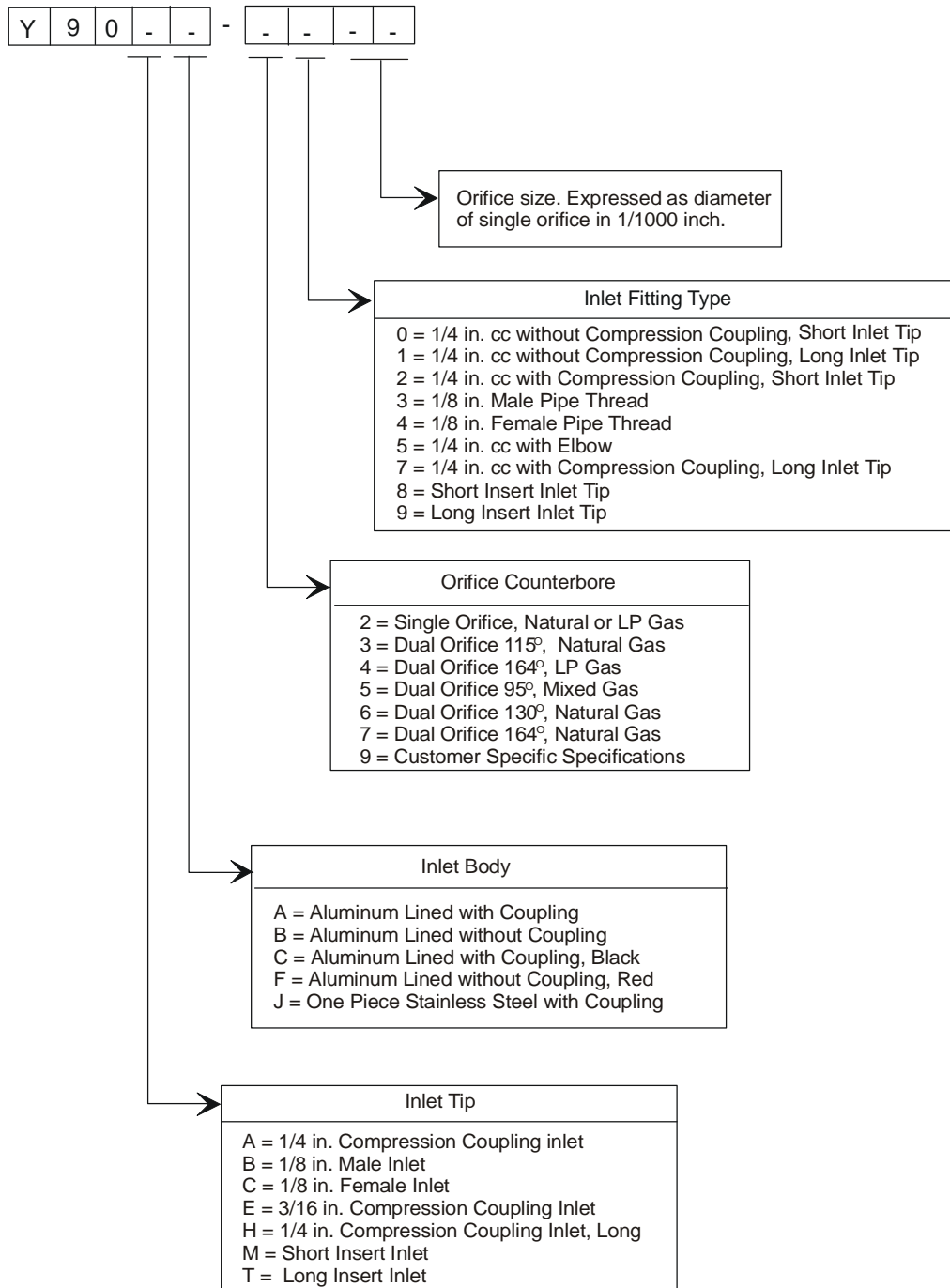


Figure 15: Y90 Inlet Fitting Ordering Matrix

Technical Data

Product	J Series Pilot Burners/Y90 Series Inlet Fittings		
Material	Spark Electrode Rod	446 Stainless	
	Mounting Bracket	Plated Steel	
	Flame Sensor	Kanthal D or Hoskins 815	
	Pilot Tip	430 Stainless	
	Pilot Body	Plated Steel	
	Inlet Tip	Aluminum	
	Inlet Body	Brass	
	Ceramic	Steatite or 96% Alumina	
	Silicone Ignition Cable	18 AWG, UL Wire Style 3257	
	Teflon Ignition Wire	20 AWG, UL 1911 (on select models)	
Maximum Temperature	Spark Electrode Rod	1500°F (816°C)	
	Mounting Bracket	825°F (441°C)	
	Sensor	1800°F (982°C)	
	Pilot Tip	1500°F (816°C), (D Tip 1350°F [732°C])	
	Pilot Body	825°F (441°C)	
	Inlet Tip	635°F (335°C)	
	Inlet Body	750°F (399°C)	
	Ceramic	1000°F (538°C)	
	Silicone Ignition Cable or Teflon Ignition Wire	482°F (250°C)	
Flame Sensor Lead	Standard	High Temperature	
	Gauge	18 AWG	18 AWG
	Maximum Temperature	302°F (150°C)	482°F (250°C)
	UL Wire Style	Style 3212	Style 3252
	Ceramic	Steatite	Steatite
Agency Listings	CSA (AGA/CGA) Certificate Number 229521-1656071		
Specification Standards	ANSI Z21.20 CAN1-6.4 CAN/CSA-C22.2 No. 199		

Performance specifications are nominal and conform to acceptable industry standards. All agency certification of BASO products is performed under dry and controlled indoor environmental conditions. Use of BASO products beyond these conditions is not recommended and may void the warranty. Product must be protected if exposed to water (dripping, spraying, rain, etc.) or other harsh environments. The original equipment manufacturer or end user is responsible for the correct application of BASO products. Consult BASO Gas Products LLC for questionable applications. BASO Gas Products LLC shall not be liable for damages or product malfunctions resulting from misapplication or misuse of its products.

Refer to the *Pilot Burners/Thermocouples Application Note (BASO-AN-PB/Thermocouples)* or *Pilot Burner and Direct Spark Ignition (DSI) Applications with Flame Rectification Sensing Application Note (BASO-AN-PB/DSI)* for necessary information on the installation, use, and servicing of this product.

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