

Installation Instructions

STICKTITE™ / PILOTPAK™ Nozzles

STICKTITE™ and PILOTPAK™ Nozzles are designed for open-port firing into a furnace, oven, heater box or immersion tube. The burner flame creates a venturi effect that pulls secondary air in around the burner nozzle and provides necessary cooling.

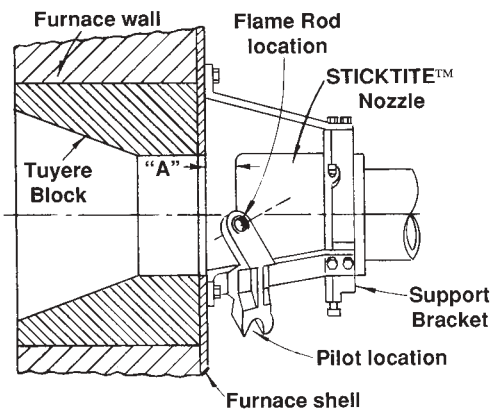
To minimize nozzle deterioration, burner must be centered within the opening of a tuyere block or immersion tube and the clearances indicated in Table 1 at right must be maintained.

Optional nozzle support brackets shown in the illustrations below insure permanent alignment of nozzle with firing port. They should be lag-bolted securely to furnace or tank shell, or to brickwork.

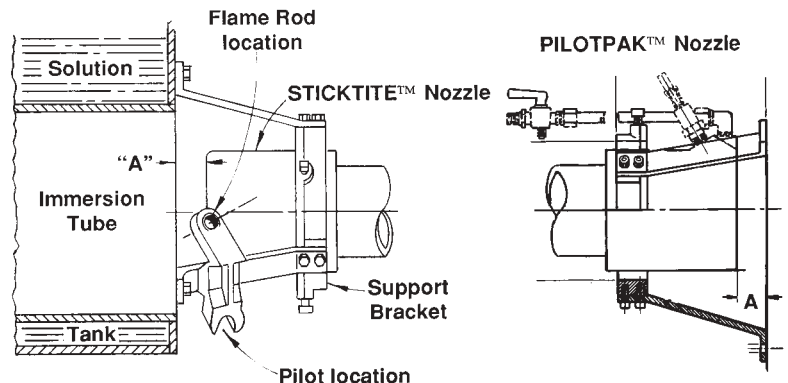
Table 1: Clearances

Inlet Pipe Size (in inches)	"A" Dimension (in inches)
1/2	1/2
3/4	
1	
1-1/4	1-1/8
1-1/2	
2	1-5/16 to 1-1/2
2-1/2	1-5/8 to 2-1/2
3	1-5/8 to 2-5/8
4	1-1/2 to 2-3/4
5	1-3/8 to 3
6	1-1/2 to 2-1/2
8	2

For Furnaces



For Solution Heating



Installation Instructions

STICKTITE™ / PILOTPAK™ Nozzles

General Start-up Instructions

Start-up procedures should follow the instructions provided for the specific premixing equipment used.

For PILOTPAK™ Nozzles, consider the following additional instructions:

1. **Pilot design** requires some combustion air flow through main nozzle orifice. (It is a nozzle-mixing pilot relying on air flow through the main burner as its source of combustion air.)

If powered mixing equipment is used (such as PREMIX® Blower Mixer) this would typically be accomplished by insuring (through the control system) that mixer is operating and at low fire position before pilot ignition sequence is begun.

If non-powered mixing equipment is used (such as VENTITE™ Inspirator), PILOTPAK™ Nozzle must be located in an air velocity of at least 500 fpm or subject to at least 0.2" wc draft. In such applications, the inspirator should be in a direct line with the nozzle (not at right angles) and air flow and/or draft pull should parallel nozzle centerline.
2. **Pilot gas pressure** should be regulated to 2-4" wc. Use two-stage regulation if necessary. Unusually high air velocities or draft conditions may require slightly higher pilot gas pressures.
3. **Protect against over-heating.** Excessive stinging from firing port or high radiant heat loads can damage both nozzle and flame rod-detector. Burner nozzle main body should not exceed 900°F during operation.

4. **Orientate nozzle for best performance.** When firing horizontally, rotate to position pilot, spark ignitor and flame rod /sensor on top. This provides better ignition and flame sensing.

If normal thread make-up doesn't give this orientation, rotate cast iron ignition ring (in 90° increments) by first loosening the four set screws holding it to the main body. If position is changed, check that set screws register with holes in the main body, then retighten securely.

5. **Firing port dimensions** should be no smaller than those of the optional tuyere block which Maxon offers for use with your particular nozzle size.

WARNING: Test every UV installation for dangerous spark excitation from ignitors and other burners, as well as other possible sources of direct or reflected UV radiation.

Maintenance Instructions

Periodic inspection of STICKTITE™ and PILOTPAK™ Burner nozzles is suggested, although no formal maintenance procedure is necessary. As a minimum:

1. Check that required nozzle clearance is maintained (piping can move or sag).
2. Check for nozzle deterioration (generally due to overheating). Replace before performance is seriously affected.
3. Check for nozzle-plugging (generally noticeable as distorted flame and/or poor flame retention) and correct if necessary.



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INDUSTRIAL COMBUSTION EQUIPMENT AND VALVES

Installation Instructions

Series "SN" Sealed Nozzles

General Instructions

The burner itself is normally only a part of your complete combustion system. Additional pipe train accessories and control components will be required for a complete system installation. The sketch below shows a typical pipe train system as might be used with Sealed Nozzle Burners.

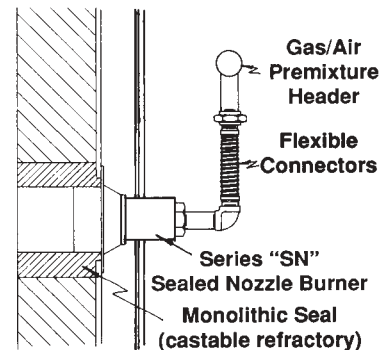
Important: Do not discard packing material until all loose items are accounted for.

To prevent damage in transit, the control valves, pipe trains, spark ignitor, mounting gaskets, flame rod and connecting linkage **components may be packed separately and shipped loose** with your new Maxon Sealed Nozzle Burner.

Series "SNF" Sealed Nozzle Burners can fire in any direction, but the scanner manufacturer may impose limitations. Avoid orientations which might permit pilot and/or flame supervision ports to collect debris and/or moisture.

Include observation ports in your combustion chamber design to provide a view of both main and pilot flame area. Start-up and adjustment procedures will be greatly simplified.

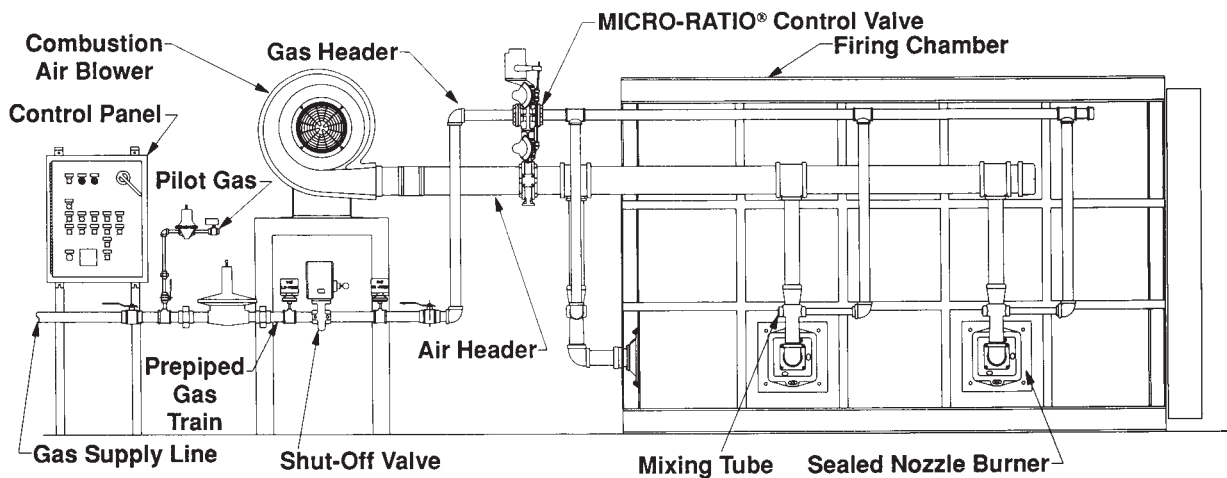
Flexible connections are recommended in all piping to reduce piping stresses and alignment/shifting problems.



The use of a monolithic seal of castable refractory around each Sealed Nozzle Burner (as shown above) will lessen the chance of shearing off the block because of unequal expansion of the refractory and the furnace shell.

Excessive maintenance on the burner blocks and castings is frequently the result of external stresses and strains transmitted to the burner through the piping. On large installations, consider the use of flexible piping connectors to provide "give-and-take" in both length and alignment. Installation of such connectors at certain key spots in the air or gas manifolding can prevent damage to the burners from uneven thermal expansion.

Typical of Series "LG" or "HG" Mixing Tubes, Maxon MICRO-RATIO® Valve and Series "SNF" Sealed Nozzle Burner



Maxon assumes no responsibility for the use or misuse of the piping layout shown. Specific piping and wiring diagrams should always be submitted to the appropriate agencies for approval on each applications.

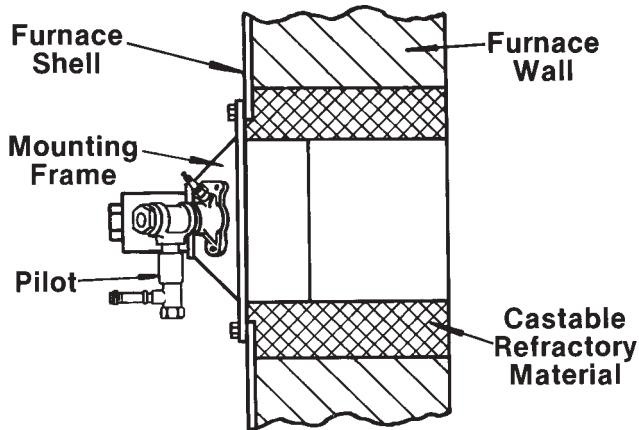
Installation Instructions

Series "SN" Sealed Nozzles

Burner Mounting

In a refractory wall, bolt burner directly to the furnace shell as shown in Sketch 1 or, if there is no shell, use angle irons extended between buckstays as shown in Sketch 2.

Sketch 1



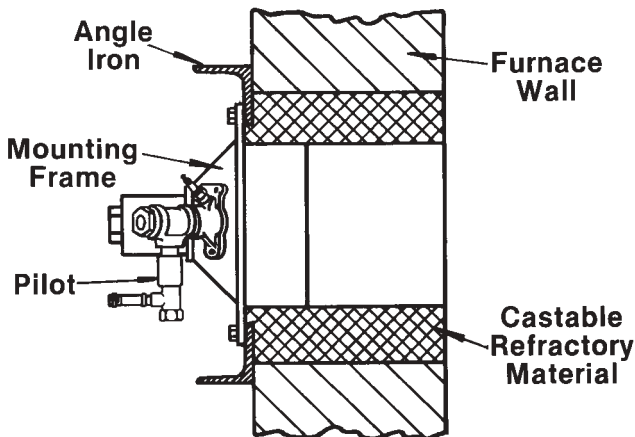
In either case, size the opening in your refractory wall to give a 3" gap around the burner, then ram with castable refractory such as A.P. Green Kast-Set, B & W Kaolin Base Castable or equal, following manufacturer's instructions. Allow sufficient dry-out time before firing burner, and cure slowly at start-up.

Note: Slotted holes in the burner mounting frame are intended to allow for lateral expansion of furnace. Tighten mounting bolts only enough to hold the burner in position.

General Start-up Instructions

Start-up procedures should follow the instructions provided for the specific premixing equipment used.

Sketch 2



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INDUSTRIAL COMBUSTION EQUIPMENT AND VALVES

Installation and Maintenance Instructions

Series "SN" Sealed Nozzles

Block Replacement

If the refractory block of your Sealed Nozzle Burner requires replacement, Maxon can supply replacement block and frame sub-assemblies.

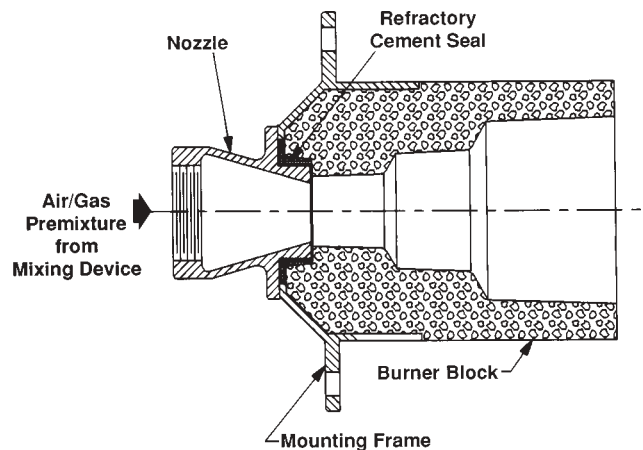
To install a new block and frame assembly:

1. Shut off system and allow to cool.
2. Disconnect piping, etc., and remove "SNF" Sealed Nozzle burner from installation.
3. Unscrew the bolts which fasten the nozzle body to the mounting frame, set aside and remove body (tapping lightly if necessary to break bond).
4. Clean all old refractory from main body to insure a proper seal when re-assembling.
5. Prepare a refractory cement mixture (preferably A.P. Green 'Sairset') mixed to the consistency of thin peanut butter.
6. Apply a generous coating of the refractory cement to those surfaces of the new block which will mate with the burner main body when it is installed.

7. Put main body into position and bolt finger-tight.
8. Remove any excess refractory cement that is forced out between body and burner block.
9. Tighten nozzle body firmly into position and clean throat with a narrow, wet brush to insure a smooth path for air and gas.
10. Allow re-assembled burner to stand at least 48 hours so that refractory cement will set.

Failure to do so may result in a weak bond and early deterioration.

11. Re-install burner, following installation instructions.
12. Dry refractory thoroughly by running burner at low fire for at least 15 minutes.
13. Reconnect controls, etc., restoring burner to service following manufacturer's instructions.



**Typical cross section
of Sealed Nozzle Gas Burner**

Notes



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