

North American 4408 VHPI Variable Heat Pattern Injector*



A new dimension to the firing flexibility and performance of roof-fired tunnel kilns.

FEATURES

- Improved temperature uniformity across the hack
- Reduction in required firing time
- Increased production via push rate increase
- Improved fuel efficiency via reduced push duration

Unlike conventional injector burners which release the fuel's energy according to the shape of their fixed flame envelope, the VHPI allows the user to dynamically move the energy release location in the vertical plane between the top of the load and the deck. VHPI provides a much more uniform heating profile, which results in a better temperature gradient throughout the product.

To accomplish the energy release shift, the VHPI has two air inlet connections supplying a pair of concentric air tubes running the length of the injector, and a single central gas tube to deliver fuel through the injector (normally at a gas pressure of 3-6 psig). Each air tube feeds an individual air nozzle at the exit of the injector. One air nozzle creates a short flame when its air is mixed with the fuel, while the other creates a long flame. Varying the air split between the two nozzles changes the energy release zone from a shorter flame optimized to heat the top of the load to a long flame that more effectively heats the load at the car deck level. The VHPI can be manually fixed at any point

between short and long flames or automatically controlled to adapt the heat release zone to the demands of the product load.

The VHPI is designed to operate only at sub-stoichiometric ratios and has no provisions for external ignition or flame supervision. Ignition of its fuel is from a hot (above 1400F) kiln chamber. As with any burner system, North American recommends the user to follow the applicable codes and standards for configuration and operation of their combustion equipment and systems.

CAPACITIES

Burner designation	Air Flow at 16 osig scfh	Gas Flow at 6 psig scfh
4408-1-A	750	100
4408-1-B	750	200
4408-1-C	1150	300

The 4408 can also be used on kilns requiring either flashing or light oil back-up. Contact Fives North American Combustion, Inc. for more information if required.

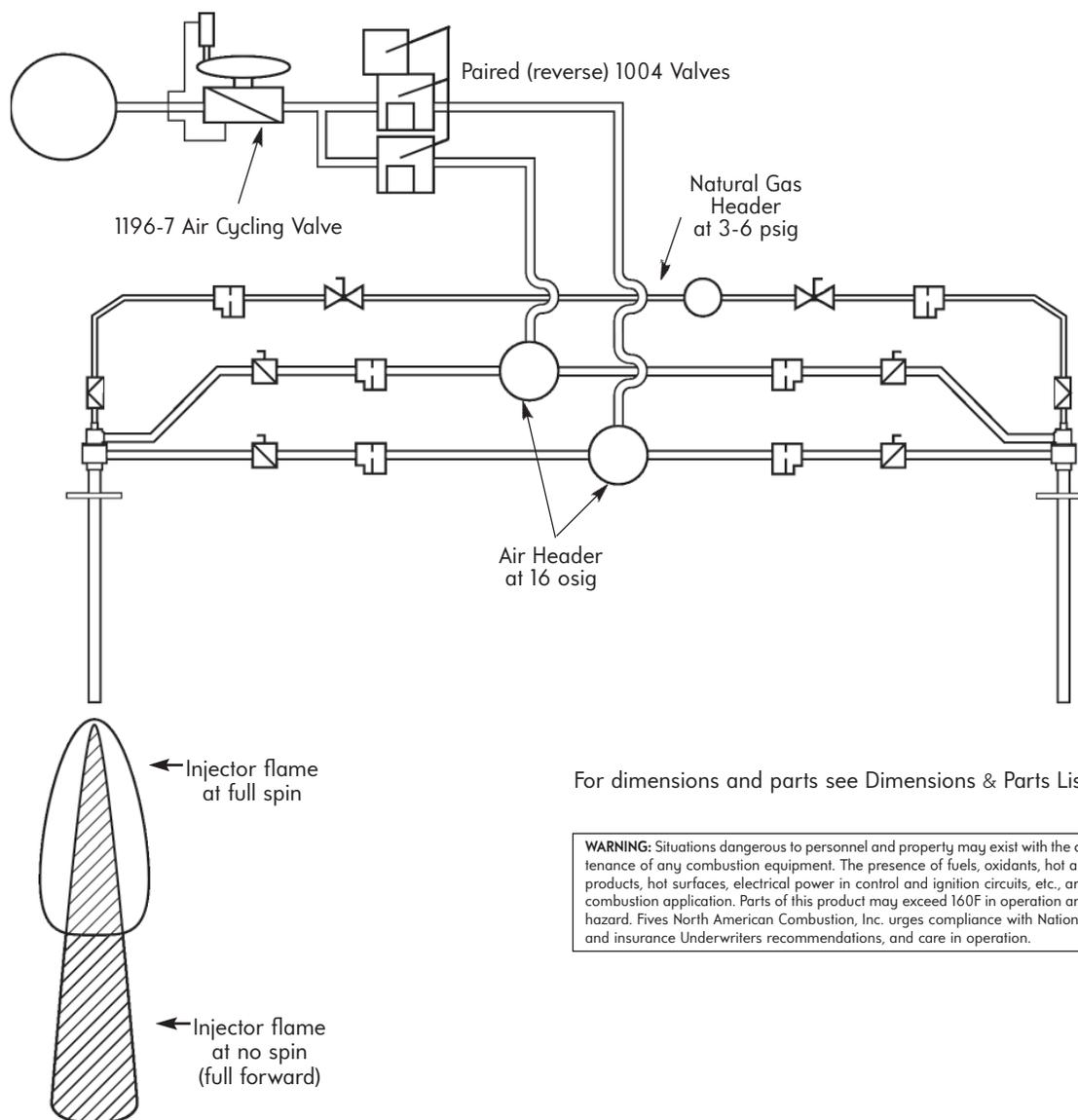
*Patent Pending

The standard VHPI length is 39" and the insertion depth below the roof top is determined with a simple adjustable collar. Other lengths and optional custom-engineered mounting plates are available. With an outside diameter of less than two inches, the VHPI can readily be inserted in the firing ports of most existing roof-fired tunnel kilns. There are no moving parts or adjustments to make inside the injector. If necessary, the capacity of the burner can be changed simply by replacing the gas nozzle.

An 8" diameter mounting flange is supplied with centering pins and a swing-away viewing port for easy observation of the injector flame.

The 4408 operates at the normal sub-stoichiometric ratios used with injector fired tunnel kilns. The kiln's existing on/off control system continues as the means of temperature control, and works in conjunction with the VHPI control system to deliver the energy to the vertical location that requires it.

Schematic of Typical Air and Gas Piping by Zone



For dimensions and parts see Dimensions & Parts List 4408-1.

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.