

- **Exceptional temperature uniformity**
- **Low NOx**
- **Range of velocities for maximum performance**

The 4465 is a small, nozzle-mix, medium or high velocity, gas burner with a great deal of flexibility for use in many applications. Increased temperature uniformity and decreased fuel usage are attained through the use of high velocity instead of excess air firing.

The 4465's low capacity rating is ideal for most roller hearth kilns. Its 11 $\frac{1}{2}$ " tile length is perfect for the typical 12" linings for these kilns. An optional "short" model is available with a mounting adapter for 9" thick kiln walls. The 6 $\frac{1}{4}$ " square mounting plate allows it to fit most furnaces, even when multiple hearths are used. The small diameter of the self-supporting tile makes it ideal for retrofitting old furnaces.

Two burner tile configurations per size make it equally adaptable to narrow or wide kilns. This allows selection of the optimum velocity for the application, without having to use a larger burner and de-rate it. The optimized velocity provides improved recirculation of kiln gases, which increases product uniformity and reduces thermal stress on the rollers.

Although the 4465 burner line was designed primarily for roller-hearth kilns, it can also be used on other types of kilns and furnaces.

Features–

- **Two tile exit areas: for narrow or wide kiln applications**
- **Rated for up to 2900°F operation**
- **Flame rod or UV flame supervision capability**
- **Wide operating flexibility to suit modulating, thermal turndown, and StepFire™ (pulsed) control systems**
- **Direct spark ignition**
- **Tile material: self-supporting alumina/mullite**
- **Built-in limiting orifice gas valve**
- **Insertion lengths available for 9" or 12" wall thicknesses**



4465 Burners are available with either "H" (high) or "M" (medium) velocity round tiles. High velocity tiles are used on wide kilns; medium velocity tiles on narrow kilns.

4465 Performance Data

Burner Size	-0	-1
Air Flow, not burning at 16 osig (scfh)	775	1450
Air Flow, Stoic at 16 osig (scfh)*	700	1300
Max. % XSA (ignition and flame rod/UV limit)	500	500
Max. % XSF (ignition and flame rod/UV limit)	30	30
Flame Length (in.), Stoic at 16 osig air	8	12
Flame Diameter (in.), Stoic at 16 osig air	2	3
Gas Pressure (osig), Stoic at 16 osig air	9.0	9.0

* Nominal capacities. Actual capacities may vary based on burner tile selection.

General Operation and Control

Two Sizes:

- **70,000 and 130,000 Btu/hr, at 16 osig air pressure.**
- **Combustion Air:** 24 osig maximum air pressure.
- **Fuel:** Natural gas. Contact North American for LP-Gas and alternate fuel applications.
- **Flame Supervision:** Flame rod or UV detector. Consult National Safety Standards and insurance underwriters for specific requirements for flame supervision.
- **Ignition:** Direct spark (no pilot) w/6000 V (minimum) transformers. A halfwave transformer will prevent UV sensing of spark during trial for ignition.
- **Control:** Applicable with all control systems -- StepFire™, on-ratio, and thermal turndown. **NOTE:** A built-in limiting orifice valve is included for fuel adjustment.
- **Relight:** 4465 burners require spark re-ignition since they will not relight off a hot tile or furnace. A trip delay device is recommended on automatic shutoff valves to avoid the need to relight after a momentary power interruption.

Construction and Piping

The body and backplate are nickel-plated heat-resistant cast iron, and the gas tube and stabilizer are stainless steel. The burner tile can be replaced in the field without mortar or cement. The igniter and flame rod (when supplied) are "straight-through" igniter type and do not have to be indexed. They can also be replaced in the field without disassembling the burner--provided proper alignment of the mounting holes in the backplate and the access holes in the stabilizer is maintained.

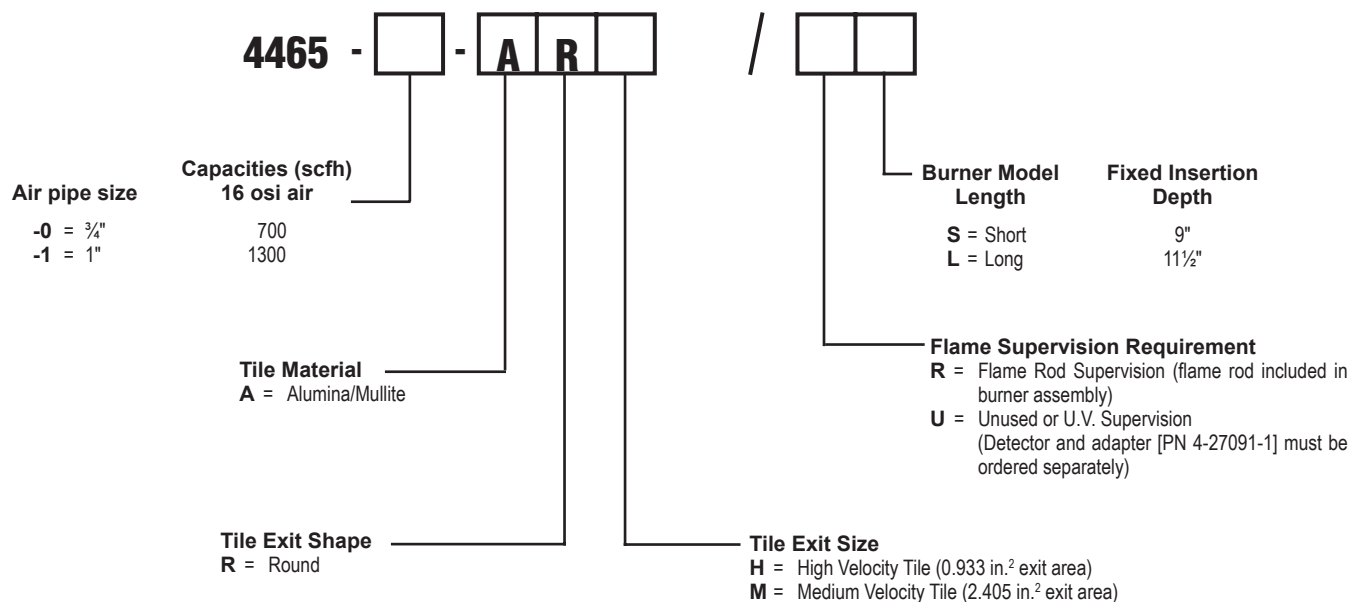
The 4465 body can be positioned in any orientation so that the air connection can be piped as desired. The backplate, with the gas inlet connection, can also be rotated independently in 90° increments with respect to the air inlet.

Round Tile Exit Area

"H" = high velocity (0.933 sq. in. exit area) —for high penetration and maximum "drive" in widekilns and furnaces.

"M" = medium velocity (2.405 sq. in. exit area) —for medium penetration with effective entrainment in narrow kilns and furnaces.

4465 Series Product Ordering Information



Examples:

- A. 4465-1-ARM/RL = 1" 4465 Gas Burner complete with an Alumina/Mullite Round Medium Velocity Tile, with a Flame Rod and a Fixed Insertion Depth of 11½".
- B. 4465-0-ARH/US = ¾" 4465 Gas Burner complete with an Alumina/Mullite Round High Velocity Tile, and a Fixed Insertion Depth of 9".

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 urges compliance with National Safety Standards and insurance Underwriters recommendations, and care in operation.

Fives North American Combustion, Inc., 4455 East 71st Street, Cleveland, OH 44105 USA, Phone 216.271.6000
Fax 216.641.7852 email: fna.sales@fivesgroup.com • www.fivesgroup.com/fivesna