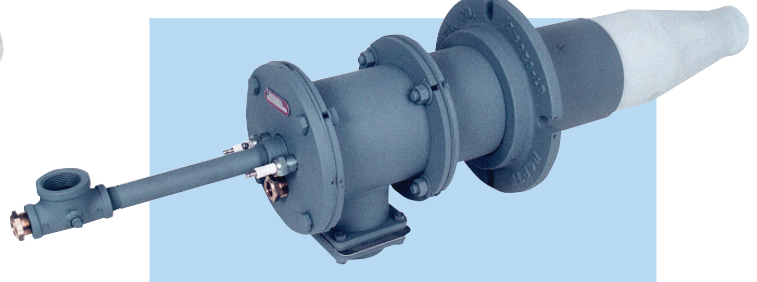
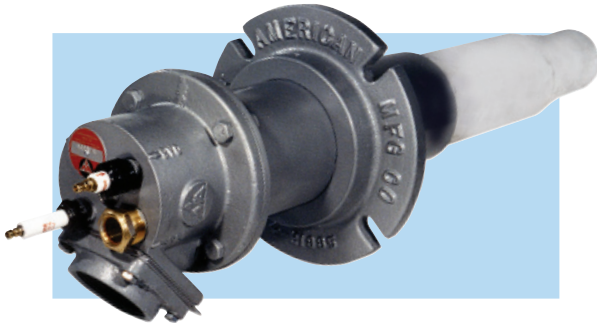


**High velocity gas burner for thick wall kilns and furnaces — standard lengths available for 9" to 40" wall thicknesses**

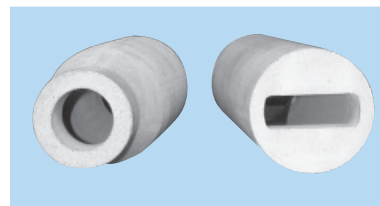


Enhanced temperature uniformity and heat transfer promoted by recirculation of combustion products, improve both product quality and productivity in many kilns and furnaces. True high velocity burners entrain and recirculate products of combustion (poc) volumes seven or more times greater than the actual tile exit gas volume, potentially eliminating the need for excess air operation or hot gas recirculation fans.

Designed for mounting in thick walls, the 4445 Tempest High Velocity Gas Burner places the tile discharge at the hot face, increasing entrainment and providing superior uniformity. Although used predominantly in ceramic kilns, other applications that can benefit from the 4445's high velocity characteristics and design features include:

- Box and Car Heat Treat Furnaces
- Galvanizing Tanks
- Lead and Zinc Pots
- Salt Baths
- and other thick wall applications

- Superior temperature uniformity
- Wide operating flexibility to suit continuous and StepFire™ (pulse firing) control
- Effective with flame rod or UV flame supervision
- Standard lengths available for 9" to 40" wall thicknesses -- longer lengths available on request
- Field adjustable mounting flange
- Tile options to fit the application:
  - Two tile materials: alumina/mullite, and metal alloy
  - Two tile exit shapes: round and slotted
- Suitable for up to 2900 F operation
- Low NOx emissions



4445 Tempests are available with either round or slotted tiles. Round tiles produce high forward thrust. Slotted tiles produce wider and thinner flames with more entrainment.

**4445 Performance Data**

Burner Size	-2	-3	-4-A	-4-B	-5	-6
Air Flow, not burning at 16 osig (scfh)	2200	3600	6500	7500	10900	17900
Air Flow, Stoic at 16 osig (scfh)*	1950	3250	5700	6900	9260	15000
Max. % XSA (ignition and flame rod limit)**	1500	1000	1000	1000	1500	1000
Max. % XSF (ignition and flame rod/UV limit)	30	30	30	30	30	30
Flame Length (in.), Stoic at 16 osig air	12	16	24	28	24	26
Flame Diameter (in.), Stoic at 16 osig air	2	3	4	4.5	3	4
Gas Pressure (osig), Stoic at 16 osig air	10	9	10	9	8.0	8.4

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

\*\* UV limits may differ.

## General Operation and Control

- **195,000 to 1,500,000 Btu/hr.**
- **Combustion Air:** 24 osig maximum air pressure (20 osig maximum on -4-B, -5, and -6 burners)
- **Gas:** Natural gas
- **Flame Supervision:** Flame rod or UV detectors. 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 shutdown. **NOTE:** For best results, the limiting orifice valve must be mounted as close as possible to the gas connection.
- **Relight:** Tempest® burners require spark re-ignition since high velocity burners will not relight off a hot tile or furnace.

## Tile Choices

Tile shapes and material that suit your specific needs.

### Materials

**"A" Tile** — Alumina/Mullite tile for most applications up to 2900 F.

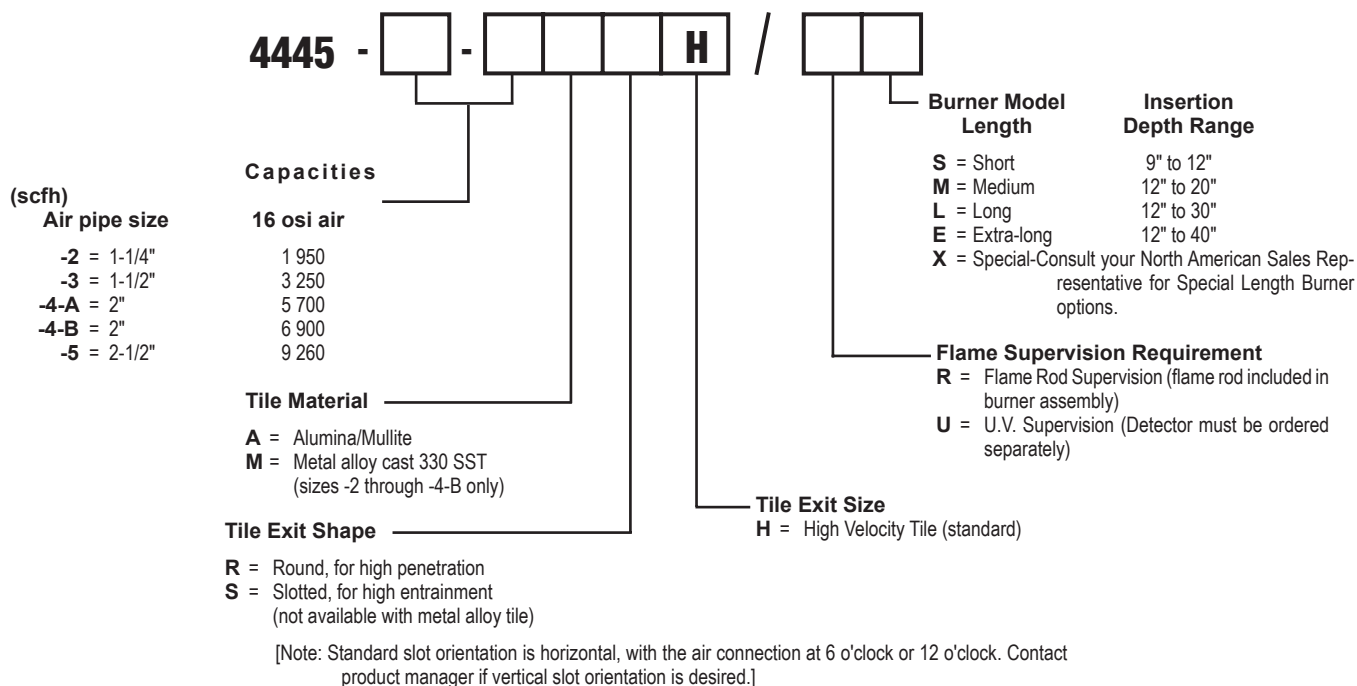
**"M" Tile** — Durable cast metal alloy tile for general applications up to 2000 F (sizes -2 through -4-B only).

### Exit Shapes

**"R" Round** — for high penetration and maximum "drive".

**"S" Slotted** — for narrow lane firing and better temperature uniformity (for "A"-alumina tile only).

## 4445 Series Product Ordering Information



### Examples:

4445-4-BASH/RL = -4-B Capacity 4445 Burner with an Alumina/Mullite Slotted High Velocity Tile, with a Flame Rod and an Insertion Depth Range of 12" to 30".

4445-2-MRH/UM = -2 Capacity 4445 Burner with a Metal Alloy Round High Velocity Tile, with "U" Flame Supervision Requirement and an Insertion Depth Range of 12" to 20".

4445-5-ARH/RL = -5 Capacity 4445 Burner with an Alumina/Mullite Round High Velocity Tile, with a Flame Rod and an Insertion Depth Range of 12" to 30".

**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