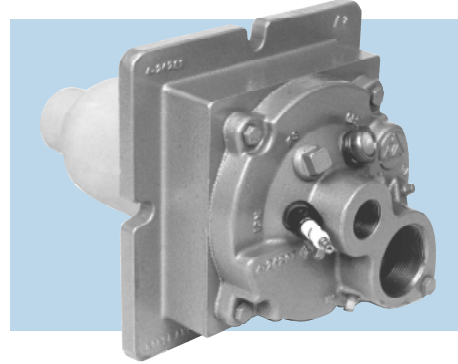


4441 Tempest. Shown with traditional square block refractory tile "R" for hardwall furnace installation.



4441 Tempest. Shown with alumina/mullite tile "A" for fiber wall furnace installation.

The Tempest High Velocity Gas Burner continues to be one of the world's most widely used burners. Its high velocity jet action and superior recirculation promoting capabilities have brought both the quality benefit of close temperature uniformity and the productivity benefit of safe higher heating rates to a wide variety of applications up to 3000 F. Common applications include: periodic and tunnel kilns in the ceramics and heavy clay industries, forge furnaces, heat treat furnaces, galvanizing baths, scrap preheaters, carbon baking furnaces, cupolas, pipe coaters, portable refractory dryout and preheat equipment, and many more.

The 4441 Tempest retains all the best features of the 4442: low NOx emissions, high excess air, direct spark ignition, integral meters, and sturdy cast construction, while improving stability range, maintainability, and stabilizer durability. New tile material and outlet shape choices provide greater flexibility in installation and "flame fitting." Wider operating limits and expanded ignition and flame supervision capabilities make the 4441 ideal for use with StepFire™ or any pulse fired control system. All these improvements were made while preserving the original 4442 "footprint" including air and gas connections, so retrofitting is easy.

- **Flexible operating capabilities**
 - Wide operating range -- from 30% excess fuel to 6000% excess air
 - Flame stability across full range to suit continuous and StepFire (pulse firing) control
 - Direct spark ignited with wide operating window
 - Low NOx emissions -- less than 60 ppm typical in 2000 F applications
- **Choice of flame supervision systems**
 - Flame rod or UV detector
- **Tile options to fit the application**
 - Material: refractory or alumina/mullite
 - Exit shape: round or slotted
 - Alloy tile - see 4441A Aardvark
- **Dependable, long lasting cast construction**
 - Design allows full access to internals and ease of replacement (if necessary)
 - Alloy stabilizer bolted to main casting
 - Built in air purge for observation port and UV scanner

Table 1. 4441 Performance Data

Burner Size	-1	-2	-3	-4-A	-4-B	-5	-6	-7
Air Flow, not burning at 16 osig (scfh)	1560	2700	4000	6100	8100	11150	19000	26000
Air Flow, Stoic at 16 osig (scfh)*	1250	2200	3300	5250	6900	9500	15000	22000
Max. % XSA, (ignition and flame rod/UV limit)**	3000	5000	5000	5000	5000	6000	6000	6000
Max. % XSF, (ignition and flame rod/UV limit)	30	30	30	30	30	30	34	42
Flame Length (in.), Stoic at 16 osig air	10	12	13	20	22	28	36	45
Flame Diameter (in.), Stoic at 16 osig air	2	2	3	5	4	6	7	8
Gas Pressure (osig), Stoic at 16 osig air	8.3	8.2	8.6	10.8	9.6	7.2	9.1	7.3

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

** Limits may vary depending on flame supervisory equipment used.

General Operation and Control

- **Capacity:** 125,000 to 2,200,000 Btu/hr
- **Combustion Air:** 24 osig maximum air pressure
- **Fuel:** Natural gas only
- **Flame Supervision:** Flame rod or UV detector. Consult National Safety Standards and insurance underwriters for specific flame supervision requirements. Flame supervisory components must be ordered separately.
- **Ignition:** Direct spark (no pilot) with 6000 V transformer. A halfwave transformer prevents UV sensing of the spark during trial for ignition. Ignition not recommended above 16 osig main air pressure.
- **Control:** Excellent performance with all control systems; StepFire™, on-ratio and thermal turndown. For maximum performance, a limiting orifice valve should be installed in close proximity (within 2 feet) of each burner.
- **Relight:** Tempest® burners require spark for re-ignition as high velocity burners will not relight from a hot tile or furnace.

Tile and Mounting Options

Tile materials and shapes to suit your specific needs.

Tiles Materials/Mountings

"R" Tile — Traditional square refractory block for applications to 3000 F. **Note: Recommended only for installation in solid wall construction furnaces/kilns. Available with either flanged or eared mounting.**

"A" Tile — Alumina/Mullite tile for fiber wall and most applications up to 2900 F. Available with flanged mounting only. Consult North American for other tile options.

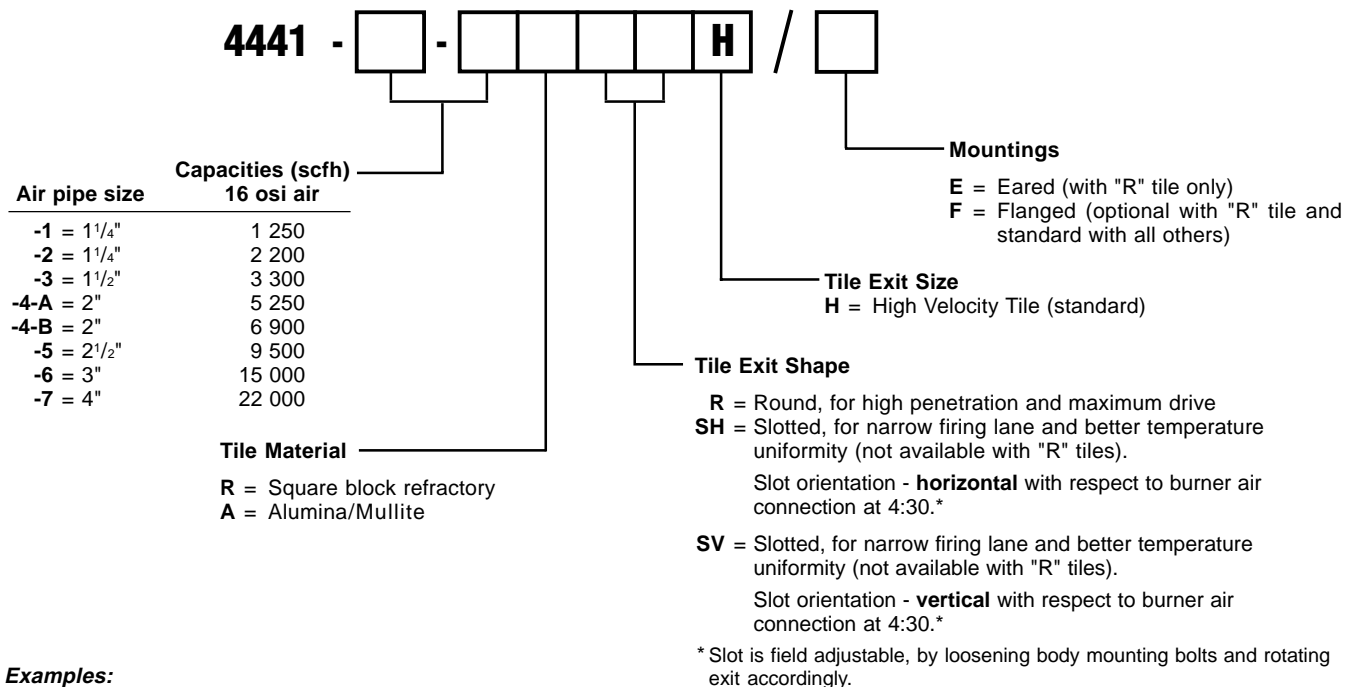
Alloy Tile — see 4441A Aardvark.

Exit Shapes

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

"S" Slotted — for narrow lane firing and better temperature uniformity (available with "A" tile only).

ORDERING INFORMATION



Examples:

4441-4-AASVH/F = -4-A Capacity 4441 Burner with an Alumina/Mullite slotted high velocity tile, with flanged mounting, complete with vertical slot arrangement.

4441-2-RRH/E = -2 Capacity 4441 Burner with a square refractory high velocity tile, with eared mounting.

4441-7-ARH/F = -7 Capacity 4441 Burner with an Alumina/Mullite round high velocity tile, with flanged mounting.

Flame supervisory components must be ordered separately.

WARNING: Situations dangerous to personnel and property can develop from incorrect operation of combustion equipment. North American urges compliance with National Safety Standards and Insurance Underwriters recommendations, and care in operation.

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