

North American "Aardvark" High Velocity Burner



The versatile Aardvark, complete as shown. It fits almost anywhere, delivers high velocity burner products over a wide range of temperatures.

The Aardvark is the all-metal tile version of the Tempest® high velocity burner, the largest selling nozzle-mix burner in the world.

It can be used as an alternate to the Tempest in most installations except those that exceed 2000 F--the 4441A Burner's metal "tile" should not be exposed directly to temperatures above 1600 F.

This all-metal burner is very useful as a complete, high velocity air heater for drying or other low temperature applications. It can be screwed onto a hot air distribution system to direct its warm or hot gases in a specific pattern or to specific areas.

The 4441A Burner can simplify continuous heating of pieces in high speed production line processes. Appropriate Aardvark-fired chambers along the line eliminate need to route parts to and from separate heat treat facilities.

In an air heater, Aardvark discharge air temperatures must be high enough to overcome radiation losses in distribution piping, and piping materials must be compatible with those temperatures.

GENERAL OPERATION and CONTROL

- **Capacity:** 230,000 to 2,250,000 Btu/hr with 16 osig air pressure.
- **Combustion Air:** 0.5-24 osig air pressure (max 350 F).
- **Fuel:** Natural gas
- **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. A limiting orifice valve must be installed in gas supply line within 1 ft. of burner. A ratio regulator should be within 4 ft. of burner.
- **Relight:** Tempest® burners require spark for re-ignition as high velocity burners will not relight from a hot tile or furnace.
- **Wide Operating Range:** Can deliver up to 22,500 scfh of air at any temperature from 300 to 1600 F (or higher per the above).
- **High Velocity:** Restricted tile exit forces hot gases to leave the burner at extremely high velocity, optimizing convective heat transfer.
- **Simplified Piping:** All primary and "secondary" air enters the burner through a single connection. Air temperatures can be controlled by throttling fuel only.
- **Simple, Reliable Operation:** Lights readily over a wide range of pressures. It is extremely stable - it does not have to be "nursed" if operating conditions fluctuate.
- **Compact Size:** As a self-contained, direct-fired air heater, it uses no cumbersome secondary air chamber; so it can fit into tight spaces.

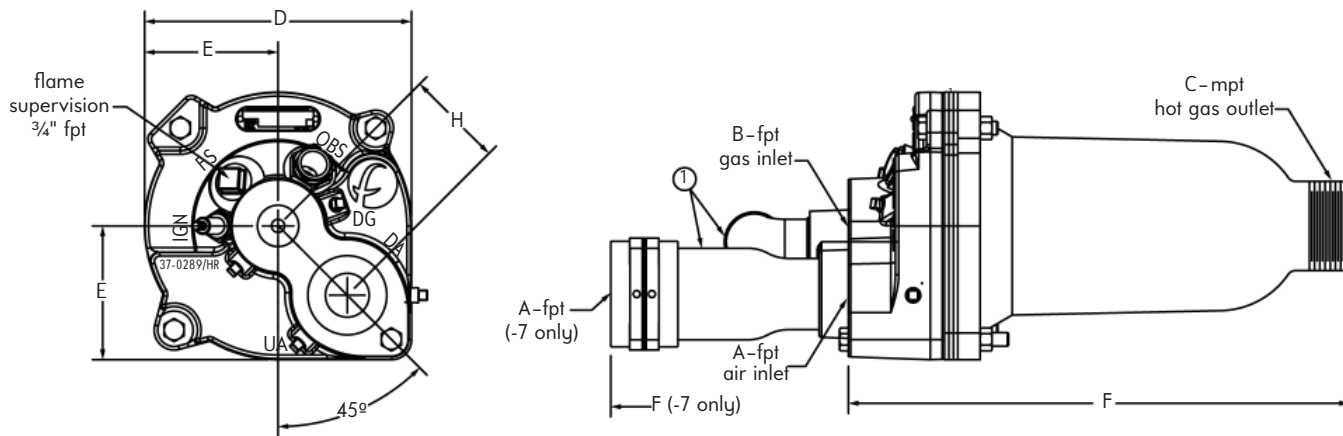
Table 1. 4441A Natural Gas Performance Data

(Performance for 16 psi main air pressure operating at stoichiometric ratio unless stated otherwise)

Burner Size	-2	-3	4-A	-4-B	-5	-6*	-7
Air Flow, not burning (scfh)	2750	3800	5900	7150	10 600	18 000	25 500
Air Flow, burning (scfh)*	2300	3300	5300	6000	9 300	14 500	22 500
Air Orifice DR,UA-DA, (in.wc)	16.8	18.2	18.3	15.0	4.2	-	11.0
Gas Orifice DR, UG-DG (in wc)	6.7	7.2	7.0	6.2	2.9	-	5.7
Gas Pressure UG (osig)	9.9	9.2	8.5	10.1	4.4	-	7.2
Gas Pressure UG (osig), 30% XSF	14.3	14.4	10.9	12.5	5.7	-	9.9
Max. % XSA, (ignition and flame signal limit)**	3500	4500	6000+	6000+	6000+	-	6000+
Max. % XSF, (ignition and flame signal limit)	30	30	30	30	50	-	50
Flame Length (in.)	12	14	24	24	24	-	42
Flame Diameter (in.)	2	2	3	3	4.5	-	6

*Lab data for -6 size not available. Air flow values estimated.

DIMENSIONS (inches)



Burner designation	dimensions in inches							wt, lb
	A	B	C	D	E	F	H	
4441A-2	1/4	3/4	2	7 1/2	3 3/4	13 7/8	2 3/4	40
4441A-3	1/2	3/4	2	7 1/2	3 3/4	13 7/8	2 3/4	40
4441A-4	2	1	2	7 1/2	3 3/4	13 7/8	2 3/4	40
4441A-4-B	2	1	2	7 1/2	3 3/4	13 7/8	2 3/4	40
4441A-5	2 1/2	1 1/4	3	10	5	15 1/2	3 3/8	75
4441A-6	3	1 1/2	3	10	5	15 1/2	3 3/8	75
4441A-7	4	2	4	10	5	25 1/8	3 3/8	95

① 4441A-7 has special arrangement of air and gas connections. See Specifications 4441

Discharge Connections. The Aardvark's threaded tile discharge connection can be connected to distribution piping with a straight or reducing coupling or flange union.

Caution: All fittings, flanges, and distribution piping must be suitable for temperatures anticipated at burner discharge.

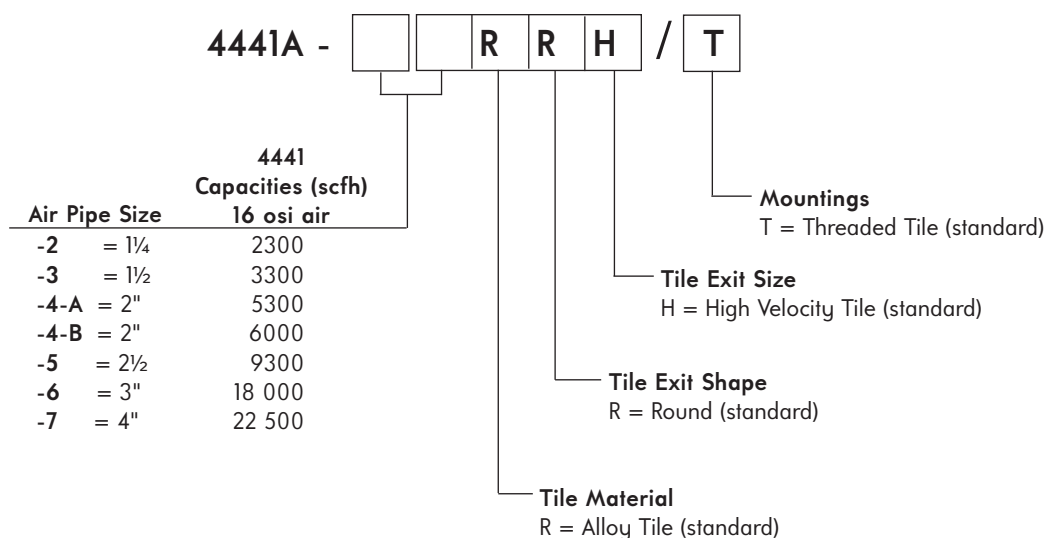
PARTS LIST

Part Name	4441A-2	4441A-3	4441A-4-A	4441A-4-B	4441A-5	4441A-6	4441A-7
Burner only*	4441A-2/BO	4441A-3/BO	4441A-4-A/BO	4441A-4-B/BO	4441A-5/BO	4441A-6/BO	4441A-7/BO
Gasket**			4-6050-1			4-6102-1	
Igniter				R240-2100			
Observation Port				8790-0			
Flame Rod Assy.	4-25432-1	4-25432-1	4-25432-3	4-25432-3	4-25432-4	4-25432-4	4-25432-2
Tile	4-6047-1	4-6047-4	4-6047-3	4-6047-3	4-6100-1	4-6100-2	4-6104-1
Air Distribution Plate		4-51353-1					

*Burner Only assembly includes Body, Igniter, Observation Port, Stabilizer, Gaskets and Air Deflector Plate.

**Gaskets are single use and should be replaced anytime the tile is removed. Aardvark requires (2) gaskets in all sizes.

ORDERING INFORMATION



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.



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