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**Axis Thermal**  
ENGINEERING COMPANY

# Xces AIR GAS BURNER - 1422

COMBUSTION SYSTEM

1422 Xces Air Gas Burners are commonly used on heat treat and nonferrous melting furnaces, kilns, ovens, air heaters, dryers, chemical process equipment, and other applications where superior temperature uniformity is required.



## PERFORMANCE FROM FUEL RICH TO XCES AIR WITH LOW NOX EMISSIONS

These sealed-in, nozzle-mix burners are stable over a wide range of air/gas ratios from large amounts of Xces air, to stoichiometric (chemically correct air/gas ratio), up to 50% Xces fuel (provided additional air for combustion is supplied to the furnace near the burners). Burners can be ignited at rich, lean, or correct air/gas ratio, then immediately turned to high fire. NOx emissions are low for all air/gas ratios. The most common ratio control system for 1422 Burners uses a cross-connected regulator. When appropriate for the application, fully metered flow systems and fuel only control are very satisfactory. Required gas pressures are low: 2"wg at burner for coke oven gas, less for natural gas.

## ADVANTAGES OF XCES AIR

Xces air can improve temperature uniformity by avoiding hot spots in front of burners, by churning furnace atmosphere to reduce stratification, and by creating positive furnace pressure to eliminate cold air infiltration. Xces air can give very high effective burner turndown. Thus, a furnace used for high temperature work (such as heat treating at 1000°C with burners firing on air/gas ratio) can also be used for low temperature jobs (such as drawing or drying at 300°C) with burners firing on lean (Xces Air) air/gas ratio. There is a potential increase in fuel consumption because of heating extra air. The benefits, such as better products from improved heating, far outweigh the small increase in fuel costs.

## APPLICATION TEMPERATURE

The 1422 burners can be used with chamber temperatures up to 1100°C. If furnace temperature could rise above 850°C after shutdown, some air should be maintained through the burner to prevent overheating.

## STANDARD CONSTRUCTION

Burner bodies are heat resistant cast iron with Inconel air tubes. Mounting plate and tile assembly can be separated from the burner body for installation convenience. Air and gas connection orientation can be rotated in 90° intervals. When reassembling the burner, the pilot and flame detector notches in the tile and mounting must be in proper alignment with the pilot and flame detector connections on the burner body. Burner is complete with cast iron mounting plate and 9" long 1500°C castable burner tile which must be supported and sealed in a hard refractory furnace wall. (See page 2 for optional construction suitable for fiber lined furnaces.) When the furnace wall is thicker than the tile length, the tunnel beyond the end of the burner tile should be flared at a 30° or greater included angle, starting at the OD of the tile.

Burner Designation	Combustion Air Capacities, scfh (Standard Cubic Feet Per Hour)						Approx. Flame length in mm with 27"wg main air (in open furnace)	Maximum percent Xces air* (at inches of WGP & direct spark)
	Air Pressure Drop Across the Burner in inches of WGP							
	1	2	7	14	21	28		
1422-2A	200	420	910	1270	1500	1920	458	300
1422-3A	360	810	1800	2450	3100	3600	608	450
1422-4A	560	1320	2600	3820	4500	5500	760	450
1422-5A	750	2050	4350	6300	7650	9050	912	500
1422-6A	1600	3100	7200	10300	12700	14750	1216	500
1422-7AA	1900	3400	8100	12100	15000	17300	1520	600
1422-8AA	3100	7250	14000	20200	23100	27000	1520	2000
1422-9AA	3650	8150	16600	23550	28000	32500	1824	2000
1422-10AA	4800	11000	22600	31500	37700	43500	2128	2000

\* Xces air rates are improved with constant pilot air.

#### OTHER PRODUCTS...

- ✓ Fire All Gas Burner 1514
- ✓ High Velocity Gas Burner 1435
- ✓ Gas Burner 1562
- ✓ HF Burner 001
- ✓ Excess Air Light Oil Burner 2422
- ✓ Fire All Heavy Oil Burner 2514
- ✓ Furnace Oil Burner 2562
- ✓ HF Burner 002
- ✓ High Velocity Oil Burner 2435
- ✓ Excess Air fuel/Gas Burner 3422
- ✓ Fire All Dual Fuel Burner 3514
- ✓ Dual Fuel High Velocity Burner 3435
- ✓ Dual Fuel Burner 3562
- ✓ HF Burner 003

**NOTE:** Dimensions shown are subject to change. please obtain certified prints from Axis Thermal Engineering Company. If space limitations or other considerations make exact dimension(s) critical.

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

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