

INSTALLATION AND OPERATION

HiRAM[®]s are suitable for furnace temperatures up to 2400°F. They can be used with preheated air up to 600°F. The reduced tile discharge opening also protects burner internals from radiant heat and from melting furnace splash. Standard burners include 3000°F dense castable tiles.

Burner tile installation should be made in accord with instructions on Supplement DF-M1 for hard refractory lined furnaces or DF-M2 for fiber lined furnaces. It is generally not necessary to use a metal jacketed tile in fiber lined furnaces with 4575 burners.

The HiRAM[®] burners can be used with a variety of control systems including pressure-balanced or electronic fuel/air ratio systems. The gas pressure requirement is approximately 0.7 that of the combustion air when firing on stoichiometric ratio.

System pressure drops should be checked to make sure that adequate gas pressure will be available at the burner. In order to avoid any potential combustion driven oscillations which can produce excessive noise or vibration, it is imperative that a limiting orifice valve be installed within 5 pipe diameters (5D) of the gas connection.

Standard 4575 HiRAM[®] burners can be used with Natural Gas or Propane. They are not designed for fuel rich operation, or fuels that contain Propylene or Hydrogen. Prolonged fuel rich operation may damage the burner.

LIGHTING AND FLAME SUPERVISION

A gas pilot or direct spark igniter can be used to light 4575 HiRAM[®] burners when the main air is set to a low fire rate.

Flame supervision systems will detect a pilot flame more reliably if the main burner air pressure is set at or below 1.5 osi (2.5" wc). Direct spark igniters light 4575 HiRAM burners more reliably when the combustion air pressure is set below 4.0 osi (7" w.c.). See Sheet 4000-2 for general details concerning direct spark ignition.

Ports on the bottom of a burner can get blocked with debris, and spark igniters work best when installed in the top or side positions. Avoid configuring the ignition/flame supervision ports on the bottom quadrant of the burner. Torch lighting is not recommended because of high tile pressures.

HiRAM[®] burners (except the -8-A and -14 sizes) are available in dual fuel (gas/light oil) models -- see Bulletin 6575. A gas pilot is required for lighting oil in a 6575.

To avoid damaging spark igniters and flame rods, they must be removed from their ports before the backplate with attached internals are disassembled from the main body.

UV flame detection can be used for all HiRAM[®] sizes or flame rods in 4575-9 through 4575-14 sizes. See table below for pilot, igniter, and flame rod part numbers.

COMBUSTION AIR CAPACITIES

scfh

(for Btu/h HHV, multiply by 100)

Burner designation	combustion air pressure drop across the burner in osi (inch w.c.)					Flame length (stoichiometric ratio, 16 osi air)
	0.2 (.35)	1 (1.73)	4 (6.9)	9 (15.6)	16 (27.7)	
4575-8-A	4 400	9 400	19 600	31 000	41 500	5'
4575-8-B	5 250	13 300	29 500	43 600	62 000	6'
4575-9	9 200	21 000	44 000	64 000	89 000	9'
4575-10-A	10 600	23 800	47 600	72 500	101,000	8'
4575-10-B	12 500	28 000	57 500	85 000	119 000	10'
4575-12	19 100	42 700	81 500	118 000	164 000	10'
4575-14	34 000	64 000	124 000	188 000	250 000	17'

Burner designation	Maximum excess air rates in % ^①			Air capacities not burning, scfh (use to size blowers) 16 osi	Pilot set	Direct spark igniter	Flame Rod
	combustion air pressure, osi	1	9				
4575-8-A	325	400	350	55 000	4011-12	4055-E	—
4575-8-B	650	500	750	81 000	4011-12	4055-E	—
4575-9	800	900	1200	116 000	4011-12	4055-E	4-25432-4
4575-10-A	675	800	900	145 000	4011-12	4055-E	4-25432-4
4575-10-B	1100	1300	1200	177 000	4011-12	4055-E	4-25432-4
4575-12	1500	1200	1000	199 000	4011-12	4055-E	4-25432-11
4575-14	1200	1200	1200	388 000	4011-12	4055-E	4-25432-11

① Do not operate fuel rich. (consider a 4821-R for rich high velocity operation)

Medium velocity 4575 burners operate at reduced air pressures compared to the high velocity versions listed above.