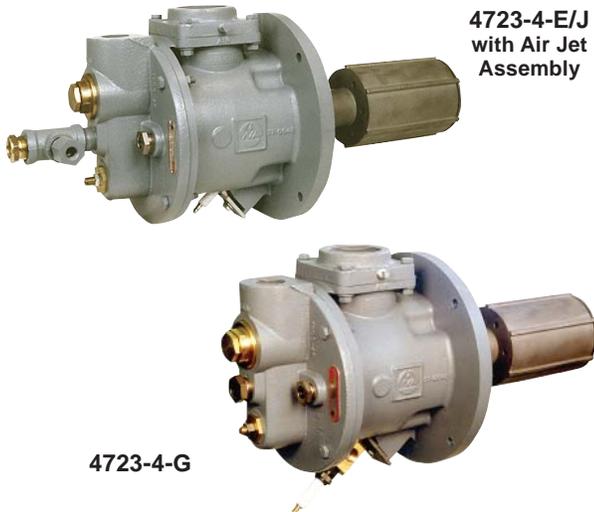


North American Evenglow Radiant Tube Gas Burners

Bulletin 4723



The Evenglow Advantage:

- The Evenglow burner adapts to your radiant tube application, adjustable heat release capabilities are built in.
- The rugged cast alloy flame retainer stages combustion, avoiding hot spots and burnouts.
- Unique lighting arrangement provides easy lighting without high maintenance bayonet-style pilots or long expensive electrodes.
- Easy access to controls and multiple observation ports are provided on the backplate.

FEATURES

The 4723 Evenglow radiant tube burner is designed to adapt to most radiant tube applications. Fuel is burned by a combination of diffusion flame and adjustable partial premix combustion. A simple, easy-to-access adjustment screw located on the backplate changes the amount of primary air premixed with the fuel, which lengthens or shortens the flame. This adjustment can be made while the burner is firing, without having to disassemble and adjust any of the burner internal parts.

Evenglow burners include a built-in V-port fuel adjustment plug, multiple observation ports, a flanged air connection, and a gas connection that can be rotated in 90° increments. **Note:** For systems using pulse-fired burner control the threaded backplate gas connection is to remain in-line with burner air connection as shown in 4723 burner graphics above. Ignition is provided by a direct spark igniter or a spark-ignited premix pilot. The ignition device is held in place with a rugged yoke that allows easy switching from one lighting method to the other.

The burner body and backplate are constructed of sturdy cast iron. The flame retainer is a single piece investment casting made from high temperature alloy for longer life.

AIR CAPACITY

Capacities in Table 1 are with the primary air set to 30%. Burners are shipped with the primary air adjusting screw closed, corresponding to 20% primary air and 87.5% of listed capacities. Wide open adjustment of primary air screw increases primary air to approximately 40% and total air capacity to approximately 117% based on Table 1 figures. Table 2 shows the approximate number of turns of the air adjusting screw for 30% and maximum primary air. Installations using greater than 30% primary air should have blower capacity increased accordingly. Primary air screw may require adjustment for smooth operation on some tube configurations. **NOTE:** The air adjustment valve should be opened one turn prior to lighting and adjusting a new burner.

PREHEATED AIR

The hot air model of the 4723 is suitable for air preheats from 400 to 900 F. The premix pilot requires ambient temperature air. These burners do not include a built-in gas adjustment cartridge; a conventional 1807 Limiting Orifice Valve must be used instead. Valves should be piped as close to the burner as possible. To order a burner for hot air add "/H" to designation. *Example:* 4723-5-E/H.

Table 1. CAPACITIES and TUBE SIZES. Capacities shown are with 30% primary air (+70% secondary air). For capacities in Btu/hr, multiply cfh air capacity by 100. Apply correction factor from Table 2 for 20% or 40% primary air operation.

Burner designation	cfh Air Capacity with Air Pressure across the burner of						Radiant Tube inside diameter†	
	0.2 osi	0.5 osi	1 osi	4 osi	9 osi	16 osi		
4723-2-E or -G	240	375	585	1480	1880	2380	3¾" min to 4⅛" max	
4723-3-E or -G	345	565	890	1685	2565	3420	3¾" 5¾"	
4723-4-E or -G	581	965	1365	2785	4270	5740	4¾" 6½"	
4723-4B-E or -G	800	1325	2005	3905	5960	7785	5" 6¾"	
4723-5-E or -G	1420	1930	2530	5015	7500	9925	5¾" 7½"	
4723-6-E or -G	1695	2235	3235	7115	10840	14535	5¾" 8¼"	

† Consult Fives North American product manager if your tube diameters are not within limits shown.

Table 2. Primary Air Screw Adjustments Required for 20%, 30% and 40% Primary Air

Adjusting Screw Turns Open	4723-2	4723-3	4723-4	4723-4B	4723-5	4723-6
20% Primary Air, 87.5% rated capacity	0	0	0	1	0	0
30% Primary Air, 100% rated capacity	3½	3½	2	4	2	5
40% Primary Air, 117% rated capacity	10+	10+	5+	‡	6½+	*

* 30% maximum primary air for -6 size.

‡ 32% maximum primary air for -4B size, minimum primary air is 15%.

BLOWER SIZING

Because the primary air adjustment may be opened to 40%, the blower should have 117% (from Table 2) of the rated total burner capacity.

LIGHTING ARRANGEMENTS

4723- -E Direct Spark Ignited Burners. The igniter is included with the burner. The main flame is ignited by a simple electrode located behind the flame front for cool long-life operation. The spark should be turned on before the burner gas valve is opened. During the ignition period, a continuous 6000 volt spark is required. Spark distributor systems cannot be used with 4723- -E burners. After the burner is ignited, the spark must be turned off for proper burner operation.

4723- -G Burners include a pilot and spark plug. A 6000 volt transformer is required. After lighting, the spark should be turned off to prolong electrode life. Spark distributor systems can be used with this burner. The pilot has 15,000 Btu/hr capacity at the maximum allowable mixture pressure of 6"wc and requires a 4031 Mixer.

CONTROL AND ADJUSTMENT

Burner must be ignited at low fire (4 osi air pressure max.). Refer to Sheets 4723-3 and 4723-4 for additional instructions and requirements. Accurate air/gas ratios can be determined by using 8697 Metering Orifices in the fuel and air lines, or by flue gas analysis.

Biasing the ratio regulator to run the burner with more excess air at low fire will reduce CO. The optional air jet will allow the burner to maintain 2-3% O₂ throughout the entire turndown range while maintaining low CO emissions.

PROPANE

Evenglow burners are suitable for use with propane gas, but the primary air must be adjusted wide open and ratio set slightly leaner to avoid soot formation. The presence of propylene in any quantity can increase soot formation in burner and tube. Zero propylene content should be specified for best operation.

U. V. FLAME SUPERVISION

Refer to Bulletin 8832, page 3, for choices of flame detectors and adapters. The UV sensor should be mounted to the center location on the backplate for best results. The "Y" adapter allows for use of the center port for UV and observation.

EXTRA LONG "L" DIMENSION

Special L dimensions, for mounting in various wall thickness and special tubes, are offered in 1" increments from 12" to 24". To request an extra length stabilizer, order 4723-_-/_L with "L" dimension. *Example:* If a burner with a 15" "L" is wanted, order: 4723-_-/_15.

ADDITIONAL 4723 DATA SHEETS

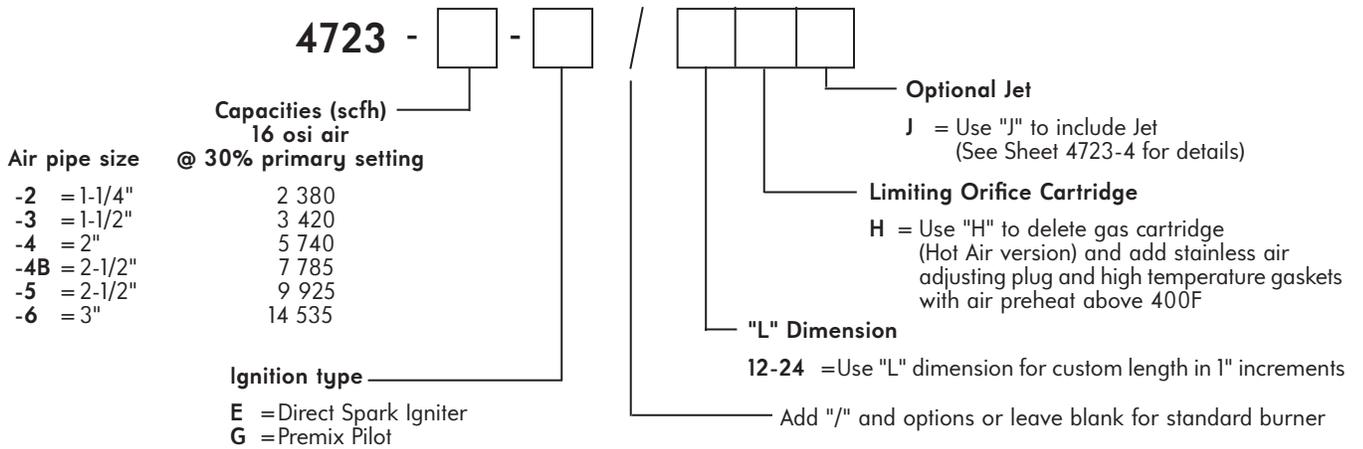
4723-1 Dimensions & Spare Parts

4723-2 Engineering Data, Air Flow, Excess Air Charts

4723-3 Control System & Installation Instructions

4723-4 Basic Operation

ORDERING INFORMATION



To order, specify: 4723-(code for pipe size) - (ignition type) / (options).

Examples: 4723-4-E Burner complete with direct spark igniter, standard length stabilizer, gas cartridge built into burner, no jet.

4723-3-G/16J Bunner complete with pilot, 16 inch "L" dimension, gas cartridge built in, with jet.

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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