

# North American 4723LNx Evenglow Low NOx Radiant Tube Burner



Simple and effective low NOx radiant tube process heating

Provides the great features of the Evenglow Family:

- Rugged cast alloy flame retainer
- Adjustable heat release capabilities
- External flame length adjustment
- Multiple observation ports
- Cool zone direct spark ignition

# Product Overview | Evenglow LNx

- Patented progressive flue gas dilution assures predictable low NOx performance and consistent ignition
- Passive design utilizes combustion air to induce flue gases from radiant tube exhaust
- Low NOx retrofit using existing fuel/air ratio control components
- Compatible with preheat air up to 800°F (427°C)

## FEATURES

The Evenglow LNx radiant tube burner is well suited for new and retrofit applications where low NOx performance is desired. The NOx-reduction technique recirculates flue gases from the exhausting leg of the radiant tube or companion heat recovery recuperator. Combustion air induces flue gases through a recirculation tube where it is progressively mixed in staged combustion zones delivering the low NOx performance. This patented method allows for stable operation from cold start-up to full operating temperature without the need for complicated controls. The Evenglow LNx is truly “plug and play” compatible with most existing systems.

As with other burners in the time tested Evenglow family, the flame of the Evenglow LNx can be tailored to the application. An easy to access adjustment located on the burner controls the amount of air premixed with the fuel, optimizing the flame length for the radiant tube. This adjustment can be made while the burner is firing, without having to disassemble and adjust any of the burner internal parts.



The durability of the Evenglow family is retained for the Evenglow LNx including high alloy cast flame retainer and sturdy cast iron throughout. Evenglow LNx burners include a built-in V-port fuel adjustment plug (ambient air only), multiple observation ports, a flanged air connection, and a gas connection that can be rotated in 90° increments. Flame ignition is accomplished with the included direct spark igniter. Flame monitoring is possible by ultraviolet flame detection (sold separately).

The Evenglow LNx is available in three capacity series. To allow optimization of system design each capacity can be achieved at three combustion air pressure series as outlined in Table 1. For best performance and maximum turndown, the highest available pressure series should be selected.

Table 1

Maximum Burner Capacity									
Capacity Series	Pressure Series	Cold Combustion Air		Preheated Combustion Air		Radiant Tube I.D. Range			
		(Btu/h HHV) @ 60°F Air	(Kw/h LHV) @ 0°C Air	(Btu/h HHV) @ 750°F Air	(Kw/h LHV) @ 400°C Air	Min (in)	Min (mm)	Max (in)	Max (mm)
800	16 12 8	1,172,740	310	800,000	212	5¾	146	7½	191
600	16 12 8	879,555	233	600,000	159	5¾	146	7½	191
400	16 12 8	586,370	155	400,000	106	5¾	146	7½	191

# Capacity | Evenglow LNX

## COMBUSTION AIR

The capacities are shown in the tables below. Burners are shipped with the primary air adjustment screw closed. The tables below list the number of counterclockwise turns from a fully clockwise seated position necessary to achieve 30% primary air.

Table 2

Capacity Series	Pressure Series	Cold Combustion Air Capacity at Operating Pressure												Air Adj. Turns for 30% Primary
		(scfh) @ 60°F combustion air temperature						(Nm <sup>3</sup> /hr @ 0°C combustion air temperature						
		(osig)						(mBar)						
		0.5	1	4	8	12	16	2	4	17	34	52	69	
800	16	2,490	3,521	7,042	9,959	12,197	14,084	69	97	194	274	336	388	5
800	12	2,753	3,893	7,786	11,010	13,485	—	76	107	214	303	371	—	5
800	8	3,198	4,523	9,046	12,793	—	—	88	124	249	352	—	—	7
600	16	1,794	2,537	5,075	7,176	8,789	10,149	49	70	140	198	242	279	1
600	12	2,055	2,906	5,812	8,220	10,068	—	57	80	160	226	277	—	1
600	8	2,314	3,272	6,544	9,254	—	—	64	90	180	255	—	—	2
400	16	1,196	1,691	3,383	4,784	5,859	6,765	33	47	93	132	161	186	1
400	12	1,317	1,862	3,724	5,266	6,450	—	36	51	102	145	178	—	1
400	8	1,561	2,207	4,414	6,242	—	—	43	61	121	172	—	—	2

Capacity Series	Pressure Series	Preheated Combustion Air Capacity at Operating Pressure												Air Adj. Turns for 30% Primary
		(scfh) @ 750°F combustion air temperature						(Nm <sup>3</sup> /hr @ 400°C combustion air temperature						
		(osig)						(mBar)						
		0.5	1	4	8	12	16	2	4	17	34	52	69	
800	16	1,694	2,396	4,791	6,775	8,298	9,582	45	64	128	182	222	257	5
800	12	1,873	2,648	5,297	7,491	9,174	—	50	71	142	201	246	—	5
800	8	2,176	3,077	6,154	8,703	—	—	58	82	165	233	—	—	7
600	16	1,220	1,726	3,452	4,882	5,979	6,904	33	46	93	131	160	185	1
600	12	1,398	1,977	3,954	5,591	6,848	—	37	53	106	150	184	—	1
600	8	1,574	2,226	4,451	6,295	—	—	42	60	119	169	—	—	2
400	16	814	1,151	2,301	3,254	3,985	4,602	22	31	62	87	107	123	1
400	12	896	1,267	2,533	3,583	4,388	—	24	34	68	96	118	—	1
400	8	1,062	1,501	3,002	4,246	—	—	28	40	80	114	—	—	2

## BLOWER SIZING

The primary air adjustment may be adjusted to a maximum of 40%. Therefore the blower should be selected to deliver 117% (from Table 2) of the rated total burner capacity.

## LIGHTING ARRANGEMENTS

4723LNX-E is a direct spark ignited 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 4723LNX-E burners. After the burner is ignited, the spark must be turned off for proper burner operation.

# Dimensions | Evenglow LNx

## CONTROL AND ADJUSTMENT

Burner must be ignited at low fire (4 psi air pressure max.) when using a standard quick acting gas solenoid. The use of a solenoid with a minimum of 5 second slow opening feature allows on/off operation of the burner. 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.

### Fuels

Evenglow burners are suitable for use with most gaseous fuels. When using higher chain hydrocarbons such as propane gas the primary air must be adjusted wide open and ratio set at 15-20% XSA 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.

Consult factory for coke oven gas and other mixed gas options.

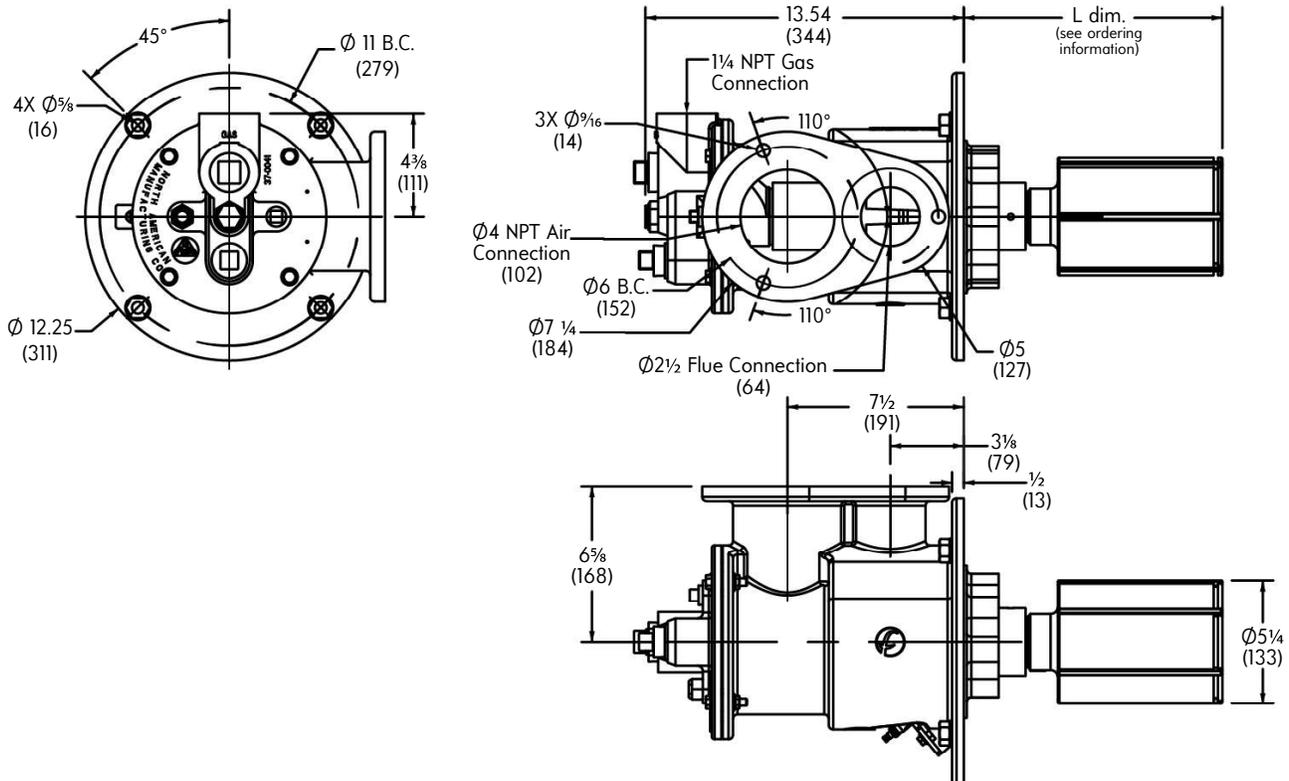
## U V. FLAME SUPERVISION

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.

## "L" DIMENSIONS

Standard L dimensions, for mounting in various wall thickness and special tubes, are offered in 1" increments from 13" to 26". Please consult factory for "L" dimensions outside of the standard product range.

## DIMENSIONS inches

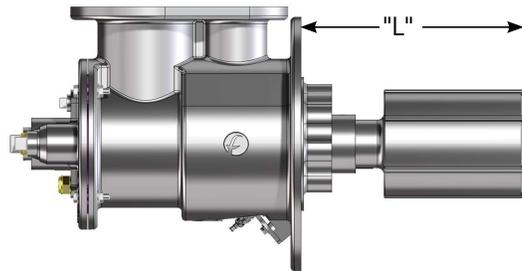


DIMENSIONS SHOWN ARE SUBJECT TO CHANGE. PLEASE OBTAIN CERTIFIED PRINTS FROM FIVES NORTH AMERICAN COMBUSTION, INC. IF SPACE LIMITATIONS OR OTHER CONSIDERATIONS MAKE EXACT DIMENSION(S) CRITICAL.

# Ordering Information | Evenglow LN<sub>x</sub>

The 4723LN<sub>x</sub>-5 burner is configured to the application. The following information is required to enter a burner order.

Step #1	Base Part Number	4723LN <sub>x</sub> -5
Step #2	Specify Pressure Series	800, 600, 400
Step #3	Specify Burner Series (osi)	16, 12, 8
Step #4	Specify "L" Dimension	13" - 26" in 1" increments
Step #5	Specify Preheated or Ambient Combustion Air	H - Preheated A - Ambient



**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. Components in combustion systems may exceed 160°F (71°C) surface temperatures and present hot surface contact hazard. Fives North American Combustion, Inc. suggests the use of combustion systems that are in compliance with all Safety Codes, Standards, Regulations and Directives; and care in operation.

## CONTACT

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