

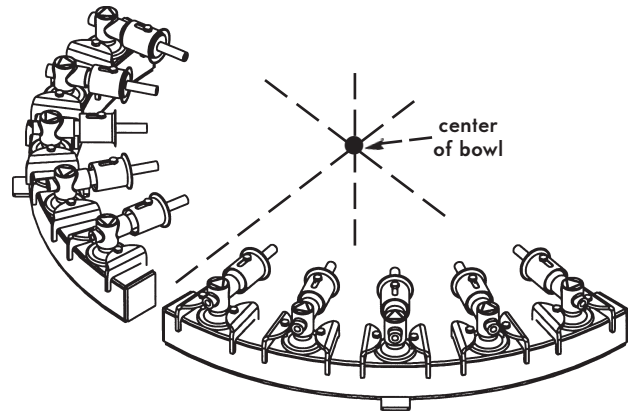
North American Glass Forehearth Burners Bowl or Curved Manifolds

Bulletin 4611

- Widest operating range available
- Rugged construction
- Superior manifold and burner block seal
- Space saving low profile
- Easy installation and adjustments
- Custom configured for any bowl shape

Designed to be used with North American's High Efficiency Heater Systems, the new 4611 premix gas burner is specifically designed for glass forehearth bowl conditions. Fabricated of high temperature alloys, steel and cast materials, these burner are built to last. Configuration is completely custom and requires complete dimensional definition by customer.

OPERATION: The 4611 can give the forehearth operator the widest operating range available--from 0.5" to 20"wc mixture pressure without flashback or lift-off. This wide operating range can mean better glass quality by using less cooling air for greater efficiency and tighter temperature control. Improved flow dynamics requires 15% lower fan pressure and provides uniform distribution through all nozzles. The extremely low profile takes up much less space, allowing better access to peep holes, wall thermocouples, binding steel, etc.



MECHANICAL: Our new "captured" manifold seal design, and easy, no guesswork, seal tightening mechanism insures no elbow/manifold leak that can cause localized flashback. Vastly improved burner block seal/adjustment arrangement can eliminate tip plugging and associated maintenance. 40% fewer parts and easy adjustments of the nozzle makes installation a breeze. One wrench size is all that's needed. Pressure test ports are standard and conveniently located. An optional adjustable seal collar can further enhance block to burner seal.

These burners have no provision for flame supervision, so they must be operated above 1450 F. No ignition means is provided.

4611 curved manifolds can include several nozzles, as space permits. Nozzle capacities range from 17,500 to 70,000 Btu/hr with 20" wc pressure at the manifold. All 4611 burners have a 2" bottom connection--location is completely flexible and specified by the customer.

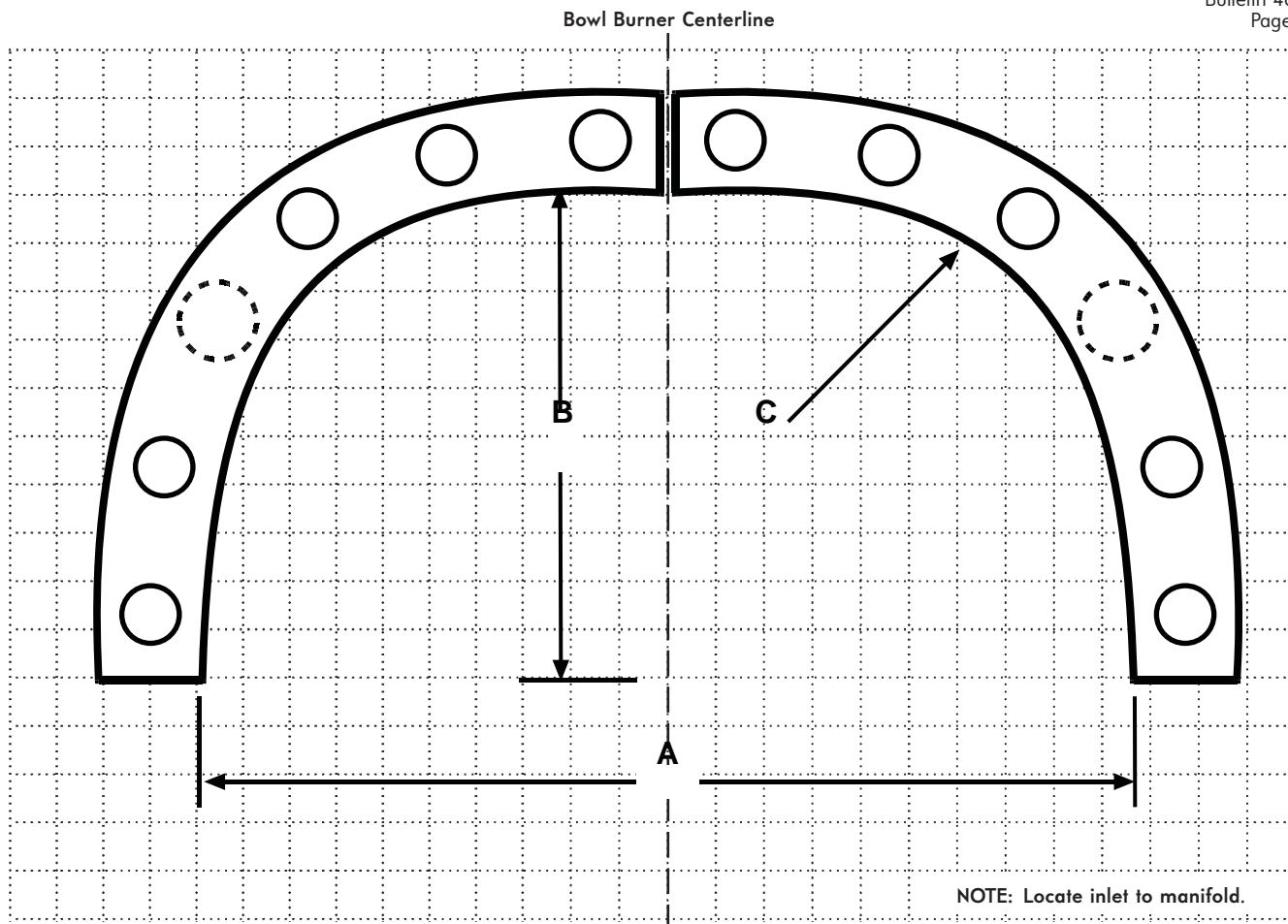
Straight manifolds are also available--see Bulletin 4610.

CAPACITIES

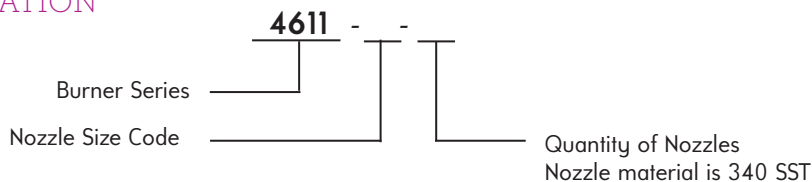
(10:1 air/natural gas ratio)

Burner designation	capacity in Btu/hr inches wc mixture pressure						
	0.5	1	3	7	10	15	20
4611-06	2 250	3 500	6 500	10 000	12 000	14 500	17 200
4611-07	3 100	5 000	9 000	13 500	16 000	20 000	23 400
4611-08	4 000	6 000	11 500	18 000	21 000	26 000	30 500
4611-09	5 100	7 500	14 500	22 500	26 500	33 000	38 700
4611-10	6 300	9 500	18 000	28 000	33 000	41 000	47 800
4611-11	7 650	11 500	22 000	33 500	40 000	49 500	57 900
4611-12	9 100	13 500	26 000	40 000	47 500	59 000	68 900

The total burner output is nozzle capacity times the quantity of nozzles on one manifold.



ORDERING INFORMATION



See Bulletin 4610 for location of these items to be specified:

- R = manifold centerline to packing face in a standard range of 4" to 12" in ½" increments.
- A = inside dimension manifold diameter (x-axis)
- B = inside dimension manifold radius (y-axis)
- C = inside radius or curve radius

Example: 4611-0810 Forehearth burner manifold with ten #08 nozzles--with R = (manifold centerline to nozzle packing face dimension).

Options: Burner block adjustable sealing collar - see part #4610SC on Sheet 4610-1. Manifold mounting system is available - see part #4610MB on Sheet 4610-1.

Additional Information:

- Use North American's unique, high efficiency system design that incorporates
 - efficient low pressure drop design for low horsepower, small fans
 - linear control
 - using linear operating valves - see Bulletin 1008/1004 or fan VFD - see Bulletin 2775
 - high flow rate mixers - see Bulletin 3065
 - straight manifold assembly is available - see Bulletin 4610
 - see Sheet 4610-1 for complete parts list
 - how 4611 burner assembly is shipped:
 - (X) quantity of nozzle assemblies consisting of (1) each: nozzle, collar, pipe extension, cast elbow, and cleanout plug assembled as a unit.
 - (1) manifold for (X) quantity of nozzle assemblies with pipeplugs in pressure taps
 - (X) quantity each of manifold and nozzle gaskets

Complete solution-

That's what we provide....contact your Fives specialist to help you find your system solution.

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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