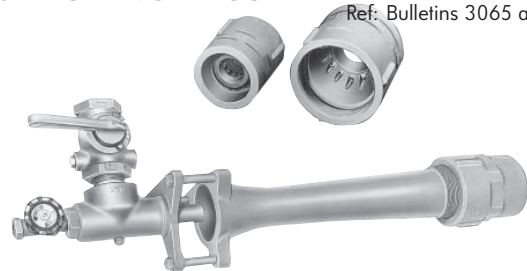


North American Flame Retention Gas Burner Nozzles

4682 Burners are open fired nozzles fed an air-gas premixture by an aspirator or inspirator mixer. They produce a well defined, medium to high velocity blue flame when at high fire on stoichiometric ratio.

These nozzles are never sealed into a refractory wall, rather they provide stable combustion firing in the open or through a tunnel in the furnace wall.

A 4682 nozzle can have its own air-gas mixer; or a gang of nozzles can be fed by one mixer. Mixture pressures as high as 12"wc and as low as 0.25"wc imply available turndown of about 7:1. However, such is difficult to count on in the "real world:" Certain piping arrangements can cause low pressure pockets in the mixture line that allow flashback long before the 0.25"wc theoretical flashback point is reached at the mixer discharge.



4682 nozzles and a compressed air torch with a nozzle--torch is handy for many spot and preheating jobs.

4682 Burners can be run fuel rich if secondary air is available around the nozzle. This increases capacity and (in some cases) widens turndown available, but flames are longer and usually have less drive.

Combustion Air Capacities (see note below) scfh

Burner designation	Mixture Pressure in inches of water						
	1	2	5	6	7	10	12
4682-0-A/BO	200	280	440	480	520	640	670
4682-0-B/BO	250	350	560	610	660	790	860
4682-0-C/BO	280	400	640	700	750	900	990
4682-1-A/BO	350	490	790	860	920	1120	1210
4682-1-B/BO	440	620	990	1070	1160	1390	1520
4682-2-A/BO	560	790	1260	1370	1480	1770	1930
4682-2-B/BO	650	920	1460	1590	1720	2060	2240
4682-2-C/BO	780	1100	1750	1910	2060	2460	2680
4682-2-D/BO	880	1240	1980	2150	2320	2780	3020
4682-3-A/BO	980	1380	2200	2390	2590	3100	3380
4682-3-B/BO	1200	1690	2690	2930	3170	3800	4120
4682-4-A/BO	1500	2120	3360	3660	3960	4760	5150
4682-4-B/BO	1900	2680	4270	4650	5000	6000	6550
4682-4-C/BO	2050	2890	4610	5000	5400	6500	7050
4682-5-A/BO	2450	3450	5500	6000	6500	7750	8450
4682-5-B/BO	2900	4100	6500	7100	7650	9200	10 000
4682-6-A/BO	3200	4510	7200	7800	8450	10 100	11 000
4682-6-B/BO	3850	5450	8650	9400	10 200	12 200	13 200
4682-6-C/BO	4250	6000	9550	10 300	11 200	13 400	14 600
4682-7-A/BO	4750	6700	10 600	11 600	12 600	15 000	17 000
4682-7-B/BO	6000	8450	13 400	14 700	15 800	19 000	20 600
4682-7-C/BO	7050	9950	15 800	17 200	18 600	22 200	24 200
4682-8-A/BO	10 500	14 800	23 500	25 600	27 700	33 200	36 200
4682-8-B/BO	1300	18 400	29 200	31 800	34 400	41 300	44 900
4682-8-C/BO	18 000	2500	40 400	44 000	47 600	57 000	62 000
4682-8-D/BO	21 500	30 200	48 100	52 500	57 000	68 000	74 000
4682-9/BO	37 700	53 000	84 500	92 000	99 500	—	—

NOTE: For Btu/hr, multiply air capacity by 100.

If secondary air is available around nozzle, burner can be run fuel rich and Btu/hr capabilities increased by factors in adjoining table.

% Combustion Air Through Burner	Multiply Capacity by
90	1.1
80	1.22
70	1.38

CONSTRUCTION/INSTALLATION

Standard 4682 nozzles are heat resistant cast iron that will take 950 F **nozzle temperature**--since burners normally are surrounded by relatively cool ambient air, they can fire furnaces or kilns as hot as 2000 F without being damaged, as long as tunnel configuration into which they fire protects them from excessive radiation.

For **nozzle temperatures** up to 1350 F, alloy nozzles (N) are available.

For best operation, use at least 4 pipe diameters between nozzle and nearest fitting or mixer.

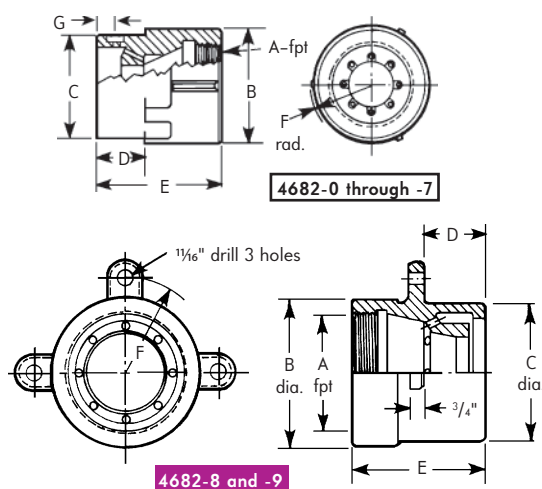
Conical mountings (MP) facilitate proper positioning of pilots and flame detectors, also help assure alignment of nozzle with firing tunnel in furnace wall.

Tiles of 3000 F dense castable material are available; or tunnels can be rammed into the furnace wall (see note below).

For 4682-0 through -7 sizes, order mountings and/or tiles as separate items. 4682-8 and -9 Burners can be ordered as separate pieces--nozzle, air register (with shutter to control secondary air), mounting plate, tile--or with all of these in an assembly.

Flame supervision can be accommodated--consult Fives North American Combustion, Inc. for an arrangement appropriate for your application.

BURNER NOZZLE DIMENSIONS



Nozzle designation	dimensions in inches							Wt, lb
	A	B	C	D	E	F	G	
4682-0-A,-0-B,-0-C/BO	3/4	1 7/8	1 3/4	1 1/16	2 23/32	1 1/16	1 3/16	2
4682-1-A,-1-B/BO	1	2	1 13/16	1 3/16	2 23/32	1 1/8	3/4	2
4682-2-A,-2-B,-2-C,-2-D/BO	1 1/4	2 7/16	2 1/4	1 3/16	2 27/32	1 11/32	1 1/16	3
4682-3-A,-3-B/BO	1 1/2	2 3/4	2 9/16	1 1/16	3 1/32	1 1/2	1/2	3
4682-4-A,-4-B,-4-C/BO	2	3 1/8	2 15/16	1 3/8	3 9/16	1 11/16	5/8	5
4682-5-A,-5-B/BO	2 1/2	3 5/8	3 3/8	1 3/8	4 1/8	1 15/16	3/4	6
4682-6-A,-6-B,-6-C/BO	3	4 1/4	4 1/16	1 3/8	5 1/4	2 1/4	1 3/16	11
4682-7-A,-7-B,-7-C/BO	4	5 3/8	5 3/16	1 3/8	6 1/4	2 7/8	5/8	22
4682-8-A,-8-B,-8-C,-8-D/BO	6	7 3/4	7 3/8	3 5/16	7 1/8	5	---	32
4682-9/BO	8	9 7/8	9 7/16	6 1/16	8 5/8	6 1/4	---	50

For alloy nozzles, place "N" before "/", e.g. 4682-1-AN/BO.

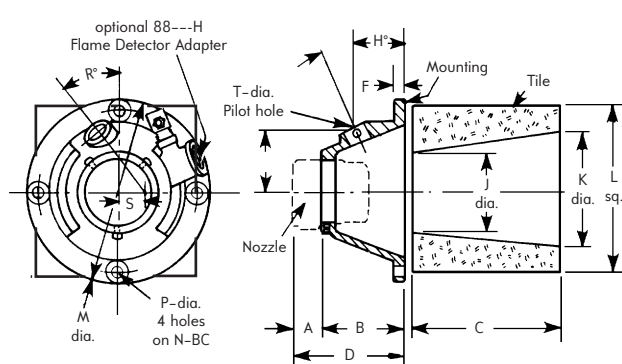
For nozzles with spark plug tap, add "T" before "/". e.g. 4682-1-AT/BO or 4682-1-ANT/BO

Separately order spark plug R240-2465

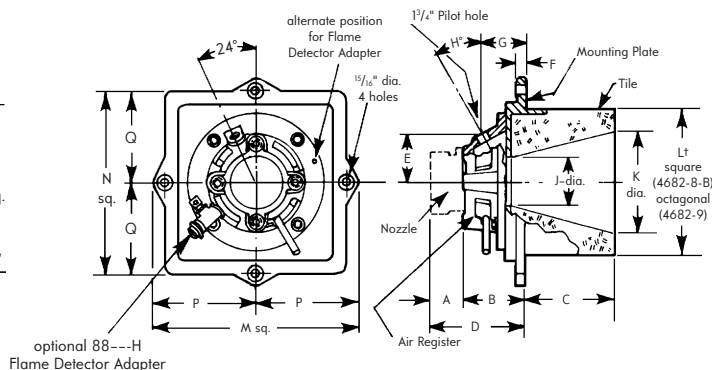
"G" = spark plug tap location

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.

MOUNTING & TILE DIMENSIONS



4682-0 through -7



4682-8 and -9

Mounting designation	dimensions in inches and degrees.																	Tile part numbers	
	A	B	C	D	E	F	G	H°	J	K	L†	M	N	P	Q	R°	S		T
4682-0-MP†	2½	2⅝	5½	4⅞	2⅞	½	1⅝	25	1¾	3	5	6	5¼	⅞	-	40	⅝	1¼	4-2653-1
4682-1-MP	1⅝	2⅝	7	4⅞	2⅞	½	1⅝	25	2⅝	4	6	6	5¼	⅞	-	40	⅝	1¼	4-2653-2
4682-2-MP	2⅞	2⅞	7	4⅞	2¼	½	2⅞	25	2⅝	4	6	6½	5¼	⅞	-	45	⅞	1¼	4-2653-2
4682-3-MP	2	3⅞	8	5⅞	2⅝	½	2⅞	30	2¾	4½	7	7½	6¾	⅞	-	40	1	1¼	4-2653-3
4682-4-MP	1⅞	4	9	5⅞	3	⅞	2⅞	30	3⅞	5½	9	8¾	7¾	⅞	-	40	1¼	1¼	4-2653-4
4682-5-MP	1⅞	4⅞	9	6⅞	3⅜	⅞	2⅞	30	4	6	9	9¾	8¾	⅞	-	40	1⅜	1¼	4-2653-5
4682-6-MP	2⅞	4⅞	9	7¼	4	⅞	2⅞	30	4	6	9	11	10	⅞	-	40	1¾	1¼	4-2653-5
4682-7-MP	2½	5¾	10⅝	8¼	4⅞	⅞	3⅞	30	6	11⅞	15⅞	13½	12¼	⅞	-	40	2⅝	1¼	3-0351-6
4682-8-MP	3⅞	6⅞	9	10⅞	6	⅞	3⅞	30	7½	11¼	15⅞	21½	19½	10¾	9¾	-	-	-	4-2156-1
4682-9-MP	2⅞	9⅞	8¾	11⅞	7⅞	⅞	4⅞	26	9½	14	18⅞	26¼	23¾	13⅞	11⅞	-	-	-	4-2157-1

†4682-0 Nozzle uses 4682-1-MP Mounting.

If tunnels are to be rammed in furnace wall, use dimension "J" at entrance, and taper tunnel at least 15°. Space nozzle about 2" from outer face of wall.



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