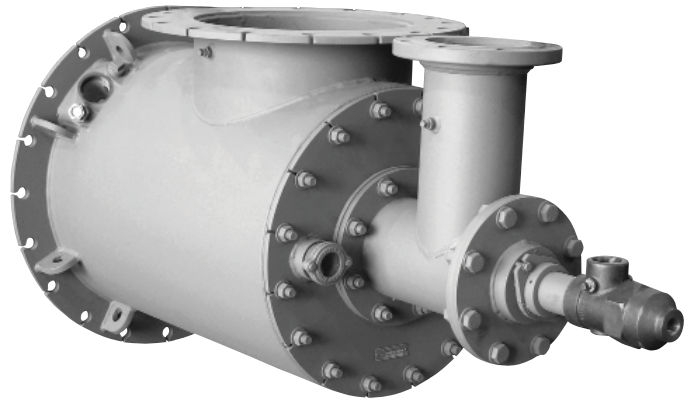


North American Magna-Flame™ Burners Dual -Fuel

Bulletin 6795

- Dual Fuel Burner, gas or oil (light or heavy grade oil)
- Conventional forward flame pattern
- 12 to 56 million Btu/hr
- For furnaces, melters, steel reheat, soaking pits, dryers, and air heaters
- Broad stability range
- Chambers up to 2200F
- Includes high pressure tip emulsion atomizer
- Atomizer for light or heavy fuel oil



6795 MAGNA-FLAME™ DUAL FUEL BURNERS

feature the same quiet combustion and large capacities at relatively low pressures as Series 4795 Magna-Flame™ Gas Burners. They have efficient "tip-emulsion" type oil atomizers for #2 or #6 fuel oil (heated to reduce its viscosity to 100 SSU).

All sizes have provisions for gas pilots and ultraviolet flame supervision devices. Both the gas and oil flames are tile-stable over a wide range of air/fuel ratios. The burners can be used in cold sealed-in combustion chambers with light oil or gas.

ATOMIZER. This burner is equipped with a Series 5643 "tip-emulsion" type atomizer. Oil and steam (or compressed air) are required at a minimum of 80 psig at the burner. The atomizers should be retracted (6") during gas only operation. (If low pressure air atomization is desired, see Supplement 6795-2.)

"Maximum" steam and compressed air consumption rates are shown below. They are for a no-oil flow condition; actual usage will always be less--from 0.75 to 2.0 pounds of steam (or 17 to 44 scf air) per gallon of oil, depending on the quantity of oil being atomized. (Use these figures to determine cost of the atomizing medium. Use the "maximum" figures shown below to size piping.)

IGNITION AND FLAME SUPERVISION.

Magna-Flame burners should be pilot ignited^①. Pilot ignition must occur at 1" wc main air pressure or less. Appropriate 4014 gas-boosted pilots (sold separately) are shown on the dimension table. Pilot operation must be interrupted to prevent overheating of the mounting. Self-checking UV scanners (sold separately) are recommended for flame supervision. See Bulletin 8832 for selection of UV adapters. It is possible for a UV scanner mounted on this burner to sight flame(s) of other burners in the same firing chamber. Consult Fives North American Combustion, Inc. for configuration guidance on multiple burner applications.

CONTROL. The burner can be operated with a constant steam pressure, turning down the oil and air only. The maximum available turndown on stoichiometric ratio is about 3:1. If the steam is throttled with the oil and air, a turndown ratio of 5:1 is possible. Gas pressure required is approximately 0.6 times the air pressure.

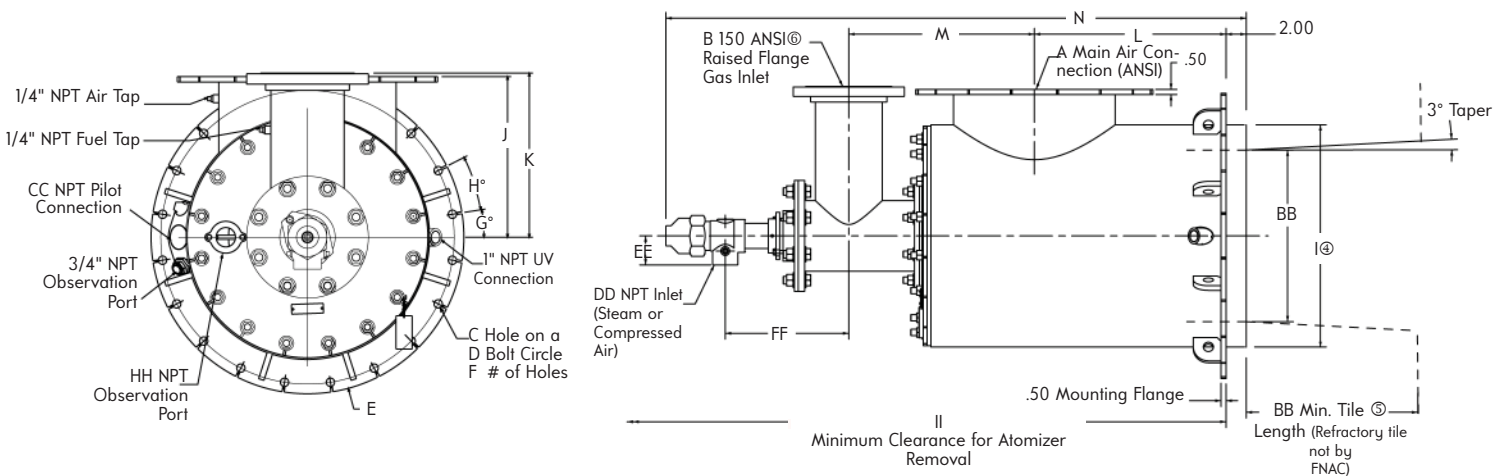
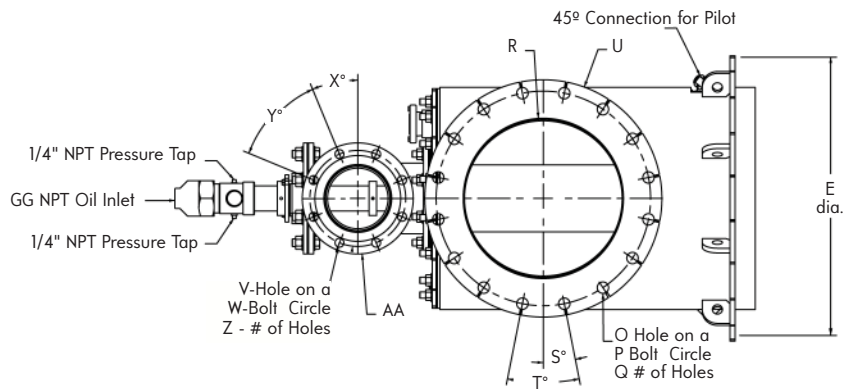
Burners are stable when running lean. The suggested maximum excess air is 50% at low fire and 150% at high fire, but these limits often can be exceeded under the proper conditions.

INSTALLATION. The burner does not include a refractory tile. The shape shown on the dimension drawing (page 2) must be built into the combustion chamber wall. See Supplement DF-M1 for installation recommendations.

Burner Designation	COMBUSTION AIR CAPACITY, (scfh) for Btu/hr, multiply by 100				FLOW RATE of ATOMIZING MEDIUM for sizing piping only		FLAME DIMENSIONS @ 8 psi main air and 10% XSair. add 10% for heavy oil	
	Air pressure drop across burner, psi				"Maximum" ^③ steam flow, lb/hr with 80 psi steam	"Maximum" ^③ compr. air, scfm with 80 psi air	Length	Diameter
	1.0	5.0	6.0	8.0 ^②				
6795-10-43	47 500	106 000	116 000	134 000	140	52	11'	4'
6795-12-43	70 000	157 000	172 000	198 000	225	83	15'	5'
6795-14-43	95 500	214 000	234 000	270 000	225	83	20'	5'
6795-16-43	121 000	269 000	295 000	340 000	660	244	25'	5'
6795-18-43	155 000	346 000	380 000	438 000	660	244	30'	6'
6795-20-43	200 000	447 000	490 000	565 000	660	244	35'	6'

- ① Because of a positive pressure in the burner, it is difficult to light with a torch unless the air is turned very low and a strong pressure torch is used.
- ② Maximum recommended pressure
- ③ See explanation in the text under "Atomizer".

DIMENSIONS



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., is 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.

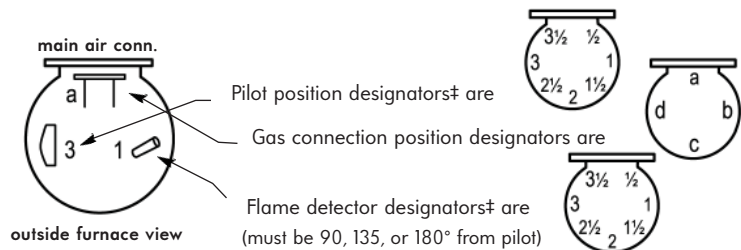
Burner Designation	Dimensions in inches and degrees																		
	A	B	C	D	E	F	G°	H°	I④	J	K	L	M	N	O	P	Q	R	S°
6795-10-43	10	4	0.75	20.5	22.25	16	11.25	22.5	16	11	14.76	12.75	13.07	42.5	1	14.25	12	10.25	15
6795-12-43	12	4	0.75	22.5	24.25	16	11.25	22.5	18	12.5	14.76	15	14.44	46.61	1	17	12	12.25	15
6795-14-43	14	6	0.75	24.5	26.25	16	11.25	22.5	20	13.5	14.81	18	17.39	52.42	1.13	18.75	12	13.88	15
6795-16-43	16	6	0.75	26.5	28.25	20	9	18	22	14.5	14.81	19	18.39	57.51	1.13	21.25	16	15.88	11.25
6795-18-43	18	6	0.75	28.5	30.25	20	9	18	24	15.5	14.81	19.51	18.89	58.51	1.25	22.75	16	17.88	11.25
6795-20-43	20	8	0.88	30.5	32.25	20	9	18	26	16.5	14.01	19.62	21.15	60.58	1.25	25	20	19.88	9

Burner Designation	Dimensions in inches and degrees																Atomizers	Recommended Pilot Assy. Designation	WT
	T°	U	V	W	X°	Y°	Z	AA	BB	CC	DD	EE	FF	GG	HH	II			
6795-10-43	30	16	0.75	7.5	22.5	45	8	9	11	1.5	0.75	1.19	10.56	3/8	3/4	66.25	5643-0	4014-2-T	255
6795-12-43	30	19	0.75	7.5	22.5	45	8	9	12.5	1.5	1	2.19	11.06	1/2	3/4	72.75	5643-1	4014-2-T	310
6795-14-43	30	21	0.88	9.5	22.5	45	8	11	14.75	2	1	2.19	10.94	1/2	3/4	82.50	5643-1	4014-3-AT	405
6795-16-43	22.5	23.5	0.88	9.5	22.5	45	8	11	17	2	1.5	2.88	12.25	3/4	2	86	5643-3	4014-3-AT	505
6795-18-43	22.5	25	0.88	9.5	22.5	45	8	11	19.25	2	1.5	2.88	12.25	3/4	2	88	5643-3	4014-3-AT	550
6795-20-43	18	27.5	0.88	11.75	22.5	45	8	13.5	21.5	2	1.5	2.88	11.94	3/4	2	95	5643-3	4014-3-BT	675

- ④ Furnace opening should be 1/2" larger than dimension I for -10 thru -16, and 3/4" larger than dimension I for -18 and -20.
- ◎ After a length of 1.2 X BB flare out the tile at a 30° angle (60° included angle).
- ◎ Flat face ANSI flange available upon request

Arrangement Designators are specified relative to the main air connection at 12 o'clock and should be listed for **pilot, gas connection, and flame detector in that order.**

Atomizer connections need not be specified because they can be rotated in the field.



‡ Good practice dictates that neither pilot nor flame detector be below the centerline of a horizontally-mounted burner.

ORDER MUST SPECIFY: (1) Burner designation (such as 6795-16-43); (2) Arrangement designation for pilot, gas connection and flame safety positions in that order such as: 6795-16-43, arrangement 3a1 (for the arrangement shown above).