



Ref: Bulletin 4795

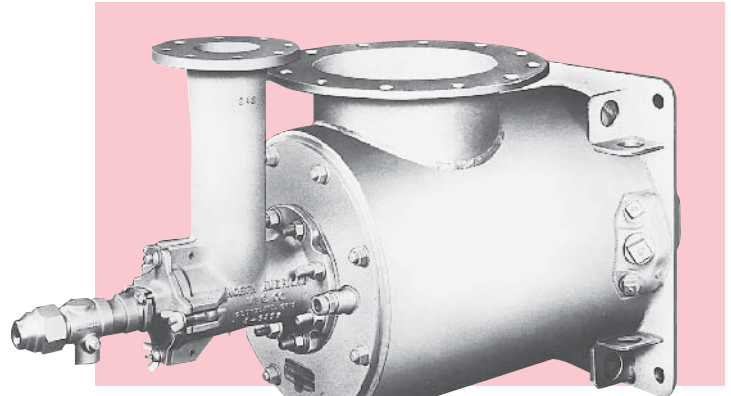
CONVENTIONAL FORWARD FLAME models of North American Magna-Flame Dual-Fuel™ Burners feature the same quiet combustion and large capacities at relatively low pressures as Series 4795 Magna-Flame Gas Burners. They have efficient "tip-emulsion" type oil atomizers for #2 or #6 fuel oil (heated to reduce its 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 fairly 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. Atomizers on all sizes can be retracted 6", and should be retracted when the burner operates on gas. (If low pressure air atomization is desired, see Supplement 6795-2.)

"Maximum" steam and compressed air consumption rates are shown in Table 2. 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 in Table 2 to size piping.)

IGNITION AND FLAME SUPERVISION. Magna-Flame Burners should not be ignited by a torch. ① A pilot of the size listed in the dimension table and a standard 88_-D flame detector adapter should be ordered. Provision must be made for low fire start with 1.0"wc main air or less. The pilot must be the interrupted type since a constant pilot would overheat the mounting. If oil is the fuel, the flame supervisory device must be an ultraviolet unit. Operation with the C7012E checking system is good.



TURNDOWN. 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 2 1/2:1. If the steam is throttled with the oil and air, a turndown ratio of 4 or 4 1/2:1 is possible.

EXCESS AIR. 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 must be built into the combustion chamber wall. See Supplement DF-M1 for suggested arrangement.

**Table 1. COMBUSTION AIR CAPACITY, scfh
(For Btu/hr, multiply by 100)**

Burner designation	Air pressure drop across burner, osi			
	1.0	5.0	6.0	8.0 ^②
6795-10-43	47 500	106 000	116 000	134 000
6795-12-43	70 000	157 000	172 000	198 000
6795-14-43	95 500	214 000	234 000	270 000
6795-16-43	121 000	269 000	295 000	340 000
6795-18-43	155 000	346 000	380 000	438 000
6795-20-43	200 000	447 000	490 000	565 000

**Table 2. FLOW RATE of ATOMIZING MEDIUM --
for sizing piping only.**

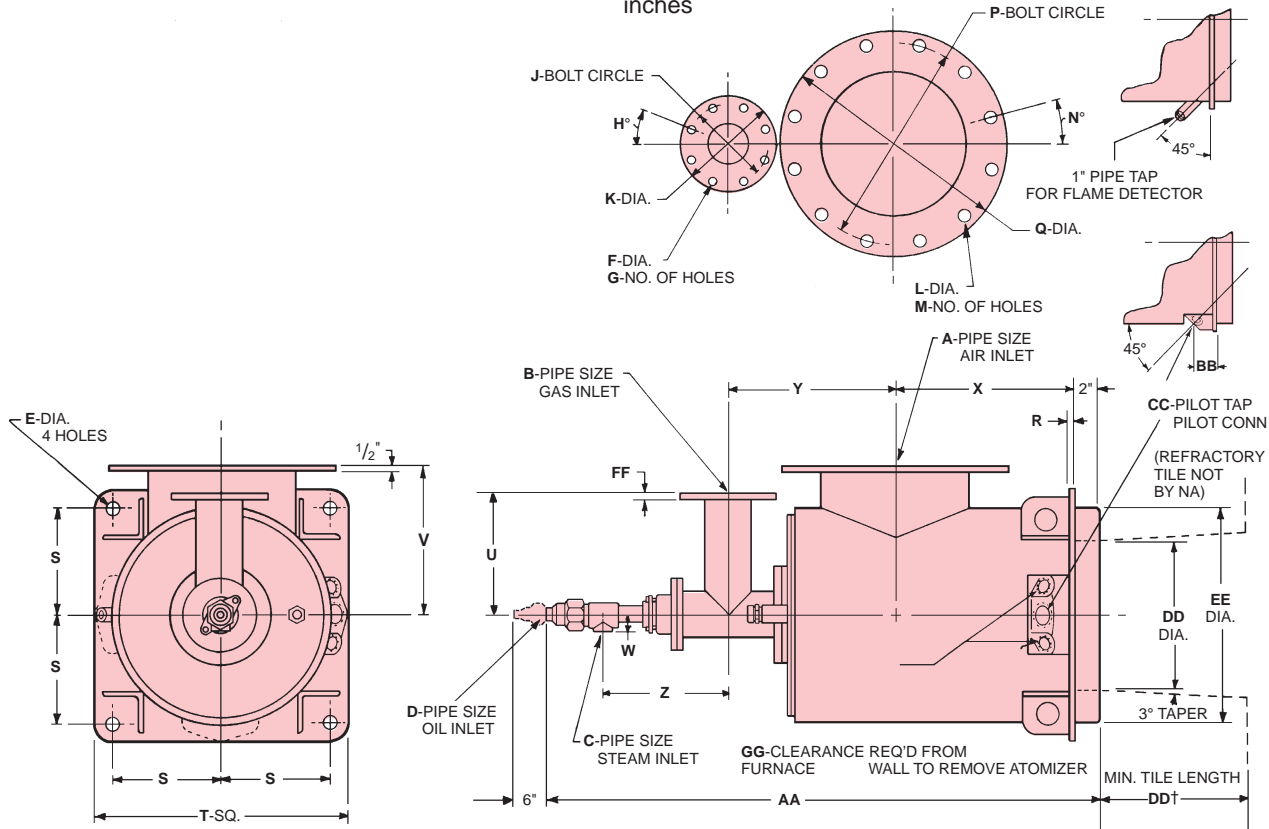
Burner designation	"Maximum" ^③ steam flow, lb/hr with 80 psi steam	"Maximum" ^③ compr. air, scfm with 80 psi air
	6795-10-43	140
6795-12-43	225	83
6795-14-43	225	83
6795-16-43	660	244
6795-18-43	660	244
6795-20-43	660	244

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".

WARNING: Situations dangerous to personnel and property can develop from incorrect operation of combustion equipment. North American urges compliance with National Safety Standards and Insurance Underwriters recommendations, and care in operation.

DIMENSIONS

inches

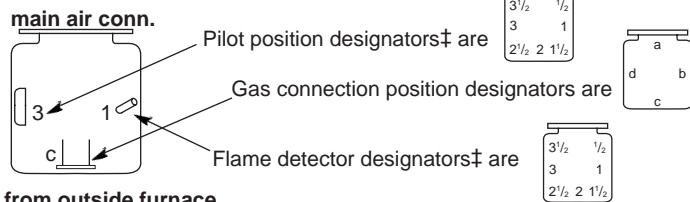


Burner designation	dimensions in inches and degrees																		
	A	B	C	D	E	F	G	H°	J	K	L	M	N	P	Q	R	S	T	U
6795-10-43	10	4	3/4	3/8	7/8	3/4	8	22 1/2	7 1/2	9	1	12	15	14 1/4	16	1/2	8	18 1/2	14 3/4
6795-12-43	12	4	1	1/2	1	3/4	8	22 1/2	7 1/2	9	1	12	15	17	19	1/2	9	21	14 3/4
6795-14-43	14	6	1	1/2	1 1/8	7/8	8	22 1/2	9 1/2	11	1 1/8	12	15	18 3/4	21	1/2	9 1/2	22	14 3/4
6795-16-43	16	6	1 1/2	3/4	1 1/8	7/8	8	22 1/2	9 1/2	11	3/4	16	11 1/4	19 1/4	21 1/4	1/2	10 1/2	24	14 3/4
6795-18-43	18	6	1 1/2	3/4	1 1/4	7/8	8	22 1/2	9 1/2	11	3/4	16	11 1/4	21 1/4	23 1/4	7/8	12	27	14 3/4
6795-20-43	20	8	1 1/2	3/4	1 1/4	7/8	8	22 1/2	11 3/4	13 1/2	3/4	20	9	23 1/8	25 1/4	7/8	13	30	14

Burner designation	dimensions in inches													Atomizer	Recommended Pilot Assembly designation	Wt, lb
	V	W	X	Y	Z	AA	BB	CC	DD†	EE	FF	GG				
6795-10-43	11	1 3/16	12 3/4	12 7/8	10 1/2	41 7/8	2 3/4	1 1/2	11	16▲	5/8	70	5643-0	4014-2-T	310	
6795-12-43	12 1/2	2 3/16	15	14 1/4	11	46 3/8	2 3/4	1 1/2	12 1/2	18▲	5/8	78	5643-1	4014-2-T	370	
6795-14-43	13 1/2	2 3/16	18	16 1/4	12	52 3/8	2 7/8	2	14 3/4	20▲	3/4	90	5643-1	4014-3-AT	400	
6795-16-43	14 1/2	2 7/8	19	17 1/4	13 1/2	57 5/8	2 7/8	2	17	22▲	3/4	98	5643-3	4014-3-AT	440	
6795-18-43	15 1/2	2 7/8	19 1/2	17 3/4	13 1/2	58 5/8	2 7/8	2	19 1/4	24●	3/4	100	5643-3	4014-3-AT	510	
6795-20-43	16 1/2	2 7/8	20	19 1/2	13 1/2	60 7/8	2 7/8	2	21 1/2	26●	3/4	104	5643-3	4014-3-BT	580	

▲ Furnace opening should be 1/2" larger than dimension EE. ● Furnace opening should be 3/4" larger than dimension EE.
† After a length of 1.2 DD flare out the tile at a 30° angle (60° included angle).

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.**



view from outside furnace

‡ Good practice dictates that neither pilot nor flame detector be on the bottom as installed. (must be 90, 135, or 180° from pilot)

ORDER MUST SPECIFY: (1) Burner designation (such as 6795-14-43); (2) Arrangement designation for pilot and flame safety positions in that order such as: 6795-14-43, arrangement 3c1 (for the arrangement shown above).

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

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