

# FLAME RETAINING GAS BURNER NOZZLES - FR SERIES

MODEL: 3102-FR

Revision: 0

BULLETIN  
3102

## CAPACITY TABLE\*

Catalog Number	Pipe Size	1000 BTU per hour at various mixture pressures Inches W.C.					
		3	6	9	12	18	24
6 FR	3/4"	45	60	75	85	110	125
8 FR	1"	70	100	125	140	175	200
10 FR	1-1/4"	160	225	280	315	390	450
12 FR	1-1/2"	250	360	440	500	620	720
16 FR	2"	440	620	760	875	1075	1240
20 FR	2-1/2"	590	840	1025	1175	1450	1675
24 FR	3"	750	1050	1300	1480	1825	2100
32 FR	4"	1300	1850	2280	2600	3225	3720
48 FR	6"	2650	3720	4560	5250	6450	7450

\* Based on 80% of combustion air as primary.

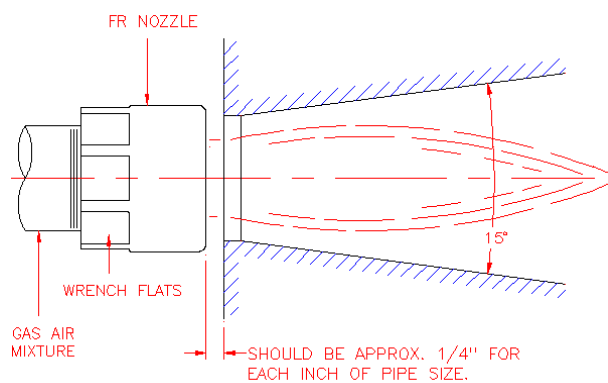


10 FR NOZZLE

## DESCRIPTION

F. R. Tips are cast iron gas burner nozzles designed specifically to use higher mixture pressures than usual with tips of this type. They have been tested up to 25" with various gases and maintain steady flames at all pressures. They can be used with a wide range of air-gas ratios and have excellent turn-down characteristics.

Special burner blocks are not required as suitable combustion tunnels can be made from any of the high temperature ramming cements. Care should be taken to conform to tunnel dimensions (see Bulletin 5760) and center the burner exactly in the opening, although always allowing room for secondary air entrainment to keep the lip of the burner cool.



**CAUTION:** Operation of combustion equipment can be hazardous resulting in bodily injury or equipment damage. Each burner should be supervised by a combustion safeguard and only qualified personnel should install, make system adjustments and perform any required service.



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COMBUSTION FOR INDUSTRY

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**NOTICE:** Pyronics practices a policy of continuous improvement in the design of its products. It reserves the right to change the specifications at any time without prior notice.

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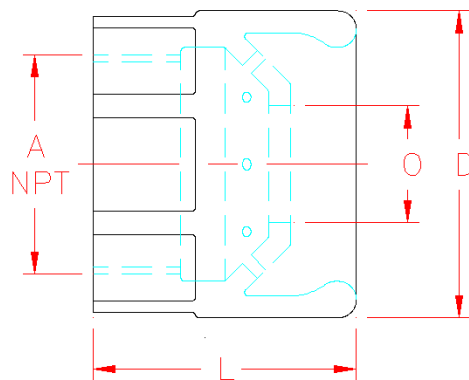
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When desired, the FR Nozzles can be used without a combustion block, as in ovens or under kettles. Tips are made of cast iron, but for special jobs they can be supplied in alloy suitable for higher temperatures. (Specify as type FRA).

These cages also permit adjustment of secondary air and make provisions for adding pilots and flame failure protection devices.

Tips have a coefficient of discharge of approximately 75%.

For convenience in mounting Tips a series of Mounting Cages has been developed (see Bulletin 5770).



## FR NOZZLES

Catalog Number	Dimensions				Actual Burner Area Sq. Inches	Net Weight Pounds
	A Pipe Size	D	L	O		
6 FR	3/4"	1-9/16"	1-9/16"	7/16"	0.182	0.5
8 FR	1"	1-7/8"	1-3/4"	9/16"	0.294	0.6
10 FR	1-1/4"	2-3/8"	2-1/16"	7/8"	0.666	0.9
12 FR	1-1/2"	2-5/8"	2-1/4"	1-1/8"	1.059	1# 8
16 FR	2"	3-1/4"	2-7/16"	1-1/2"	1.848	1.4
20 FR	2-1/2"	3-7/8"	2-3/4"	1-3/4"	2.486	3.7
24 FR	3"	4-1/2"	3-1/8"	1-15/16"	3.245	6.6
32 FR	4"	5-7/8"	4"	2-5/8"	5.533	11.9
48 FR	6"	8-1/4"	5"	3-3/4"	11.191	22.8

## ORDERING INFORMATION

Orders should show catalog number and quantity of each size FR Tips required.

If in doubt as to about data, send us complete information as to application requirements, kind of gas, mixture pressure available and quality of mixture to be used, and we will be glad to assist in making correct selection for your job.