

# MULTIFIRE®

## High temperature dual fuel burner



- Operates on-ratio or with excess air to meet the specific demands of your combustion process needs
- Burns most clean, low pressure gaseous fuels or light oil
- Higher capacity heavy oil version available. Unique low pressure atomization for oil requires no compressed air
- High turndown for maximum operation flexibility
- Maximum application flexibility with 7 different sizes and maximum capacities ranging from 3.4 MBtu/h up to 23.3 MBtu/h
- Lower fuel consumption made possible by use of preheated combustion air (up to 797 °F)
- Alternate refractory block materials for furnaces up to 3000 °F

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COMBUSTION SYSTEMS FOR INDUSTRY

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## Product description

The MULTIFIRE® burner is a nozzle-mixing dual fuel burner, capable of firing on most gases and light oils.

The air/fuel mixing design allows for the burner to be operated on ratio or with excess air throughout its entire operating range.

The dual fuel capability indicates that MULTIFIRE® burners fire on either gas or oil, but not both fuels at the same time.

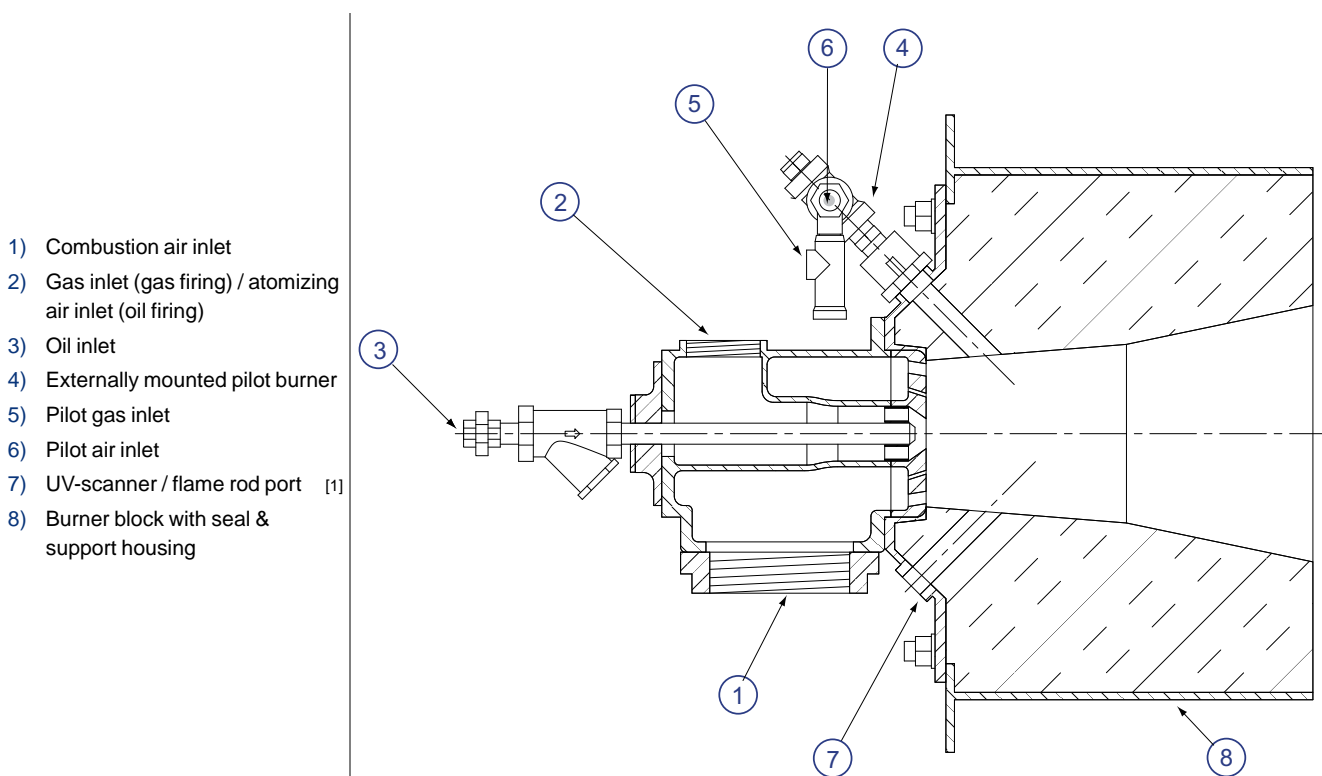
Combustion air enters the burner body and is swirled out into the burner block through machined air orifice ports on the face of the burner nozzle.

On gas firing, the gas enters the burner body and travels down through the inside of the gas nozzle. As the gas passes through the nozzle face, it is spun out into the refractory block tunnel where it is thoroughly mixed with the combustion air.

On oil firing, the oil is brought through the oil strainer into the oil tube/nozzle tip. Atomizing air enters the burner body through the same opening that supplies gas for the gas firing option. The atomizing air attacks the stream of liquid oil at the face of the oil tube/nozzle tip.

In both the gas firing and oil firing options, a spark ignited gas pilot provides a stable pilot flame down through its own pilot tunnel in the refractory block to intersect and ignite the fuel/air mixtures coming out of the nozzle face.

Provision is made for a single UV-scanner to monitor both gas pilot and main flame. A flame rod is also available for gas only firing.



[1] Flame scanner port shown out of position for illustration only.

## Available MULTIFIRE® sizes

Typical burner data													
Fuel : light oil (#2): 142,000 Btu/gal - viscosity to be max. 50 SSU													
Combustion air : 60 °F - 21% O <sub>2</sub> - 50% humidity - sg = 1.0 [1]													
Stated pressures are indicative. Actual pressures are a function of air humidity, altitude, type of fuel, and gas quality.													
Burner size & type		MULTIFIRE® II						6"-HO MULTIFIRE® (oil only)		6"-HC MULTIFIRE®		MULTIFIRE® III	
		2"		3"		4"						6"	8"
Comb. air diff. pressure [2]	"wc	25	32	25	32	25	32	25	38	24	38	24	24
Max.cap. gas firing	for closed chamber [3] MBtu/h	0.68	0.74	1.45	1.60	2.83	3.0	9.3	11.5	8.02	10.07	8.02	15.18
	air heating [4] MBtu/h	0.74	0.85	1.85	1.93	2.86	3.0	9.3	11.5	18.43	23.37	11.60	21.84
Max.cap. oil firing	for closed chamber [3] MBtu/h	0.73	0.74	1.45	1.60	2.84	2.95	9.3	10.7	9.9	12.45	8.7	16.21
	air heating [4] MBtu/h	0.8	1.1	1.82	1.96	2.84	2.95	9.3	10.7	22.69	28.66	12.62	23.37
Combustion air required for closed chamber max. gas firing	scfm	114	123	242	267	471	500	1140	1485	1.47	1854	1471	2766
Combustion air required for closed chamber max. oil firing	scfm	121	124	242	267	473	492	1250	1500	1.47	1854	1471	2766
Gas pressure [5]	"wc	22	27	13	15	26	30	N/A		4 ... 6	6 ... 8	28 / 60	25 / 55
Oil pressure [6]	psi	6	6	20	24	16	18	5	8	7.2 / 39	11 / 60	17 / 40	8 / 9

[1] sg (specific gravity) = (relative density to air = 0.0763 lb/ft<sup>3</sup> (st))

[2] light oil (#2): 142,000 Btu/gal – viscosity to be max. 50 SSU

[3] Closed chamber firing: no secondary air available - overfiring not possible.

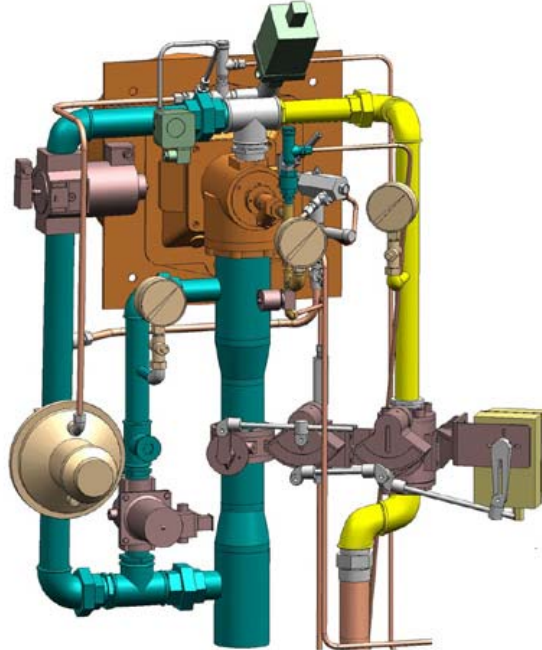
[4] Air heating applications: sufficient fresh air available.

[5] Gas pressures for natural gas at burner inlet, for closed chamber (before "/>) and fresh air heating (after "/>) at listed maximum capacities.

[6] Oil pressures at burner inlet, for closed chamber (before "/>) and fresh air heating (after "/>) at listed maximum capacities, indicative, not to be used for burner commissioning (to be used for pipe train design only).

## Applications

MULTIFIRE® burners are designed to be used in high temperature furnaces but are applicable in lower temperature air heaters as well. They are commonly applied on kilns, industrial ovens and furnaces, waste and fume incinerators, melting furnaces and other applications requiring high temperatures.

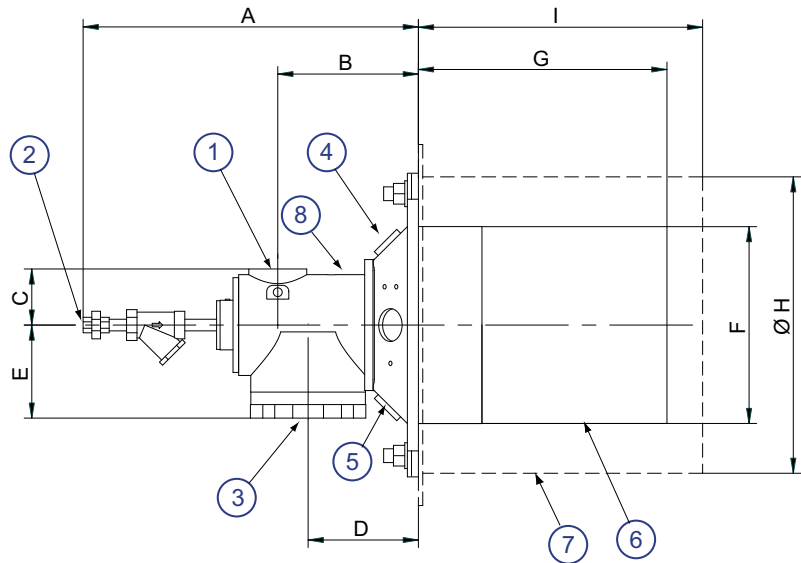


**MULTIFIRE® 4" gas/oil burner including MAXON gas/oil/air ratio control valves.**

## Dimensions and weights

### MULTIFIRE® - all sizes

- 1) Gas/atomizing air inlet
- 2) Oil inlet
- 3) Combustion air inlet
- 4) Flame scanner connection
- 5) Pilot burner mounting port
- 6) Standard block
- 7) Optional block with seal and support
- 8) Housing



Dimensions in inches unless stated otherwise													
Burner size	Gas / atomizing air inlet [1]	Combustion air inlet [1]	Oil inlet	A	B	C	D	E	F [2]	G	Ø H	I	Weight (lbs)
2"	1"	2"	1/4"	13.18	5.56	2.06	4.50	2.38	7.5	9	11.56	9	57
3"	1-1/2"	3"	1/4"	15.19	2.56	2.56	5	4.32	9	11.25	13.56	11.25	92
4"	2"	4"	3/8"	15.82	7.44	3	5.62	5.19	11.5	11.5	17.12	11.50	145
6"	3"	6"	3/8"	22	12.69	5.25	10.88	5.56	16.38	10.5	17.12	16.25	200
6"-HO	3"	6"	3/8"	19.75	12.94	5.25	11.13	5.56	24.5	18.44	24.5	18.44	200
6"-HC	3"	6"	3/8"	24.30	12.94	5.25	11.13	5.56	24.5	18.44	24.5	18.44	200
8"	4"	8"	1/2"	31.31	10.50	3.75	10.50	9.62	24.5	24.69	24.5	24.69	530

[1] Connections are threaded (NPT or ISO) or flanged (ANSI or DIn), refer to "Specifications of MULTIFIRE® burners".

[2] Standard burner blocks can be round (R) or square (S) depending on burner size. Refer to table below for block geometry.

Burner size	Standard block	Block with seal and support housing
2"	S	R
3"	S	R
4"	S	R
6"	R	R
6"-HO	R	R
6"-HC	R	R
8"	R	R

Read "Specifications of MULTIFIRE® burners" for more detailed information on MULTIFIRE® burners.