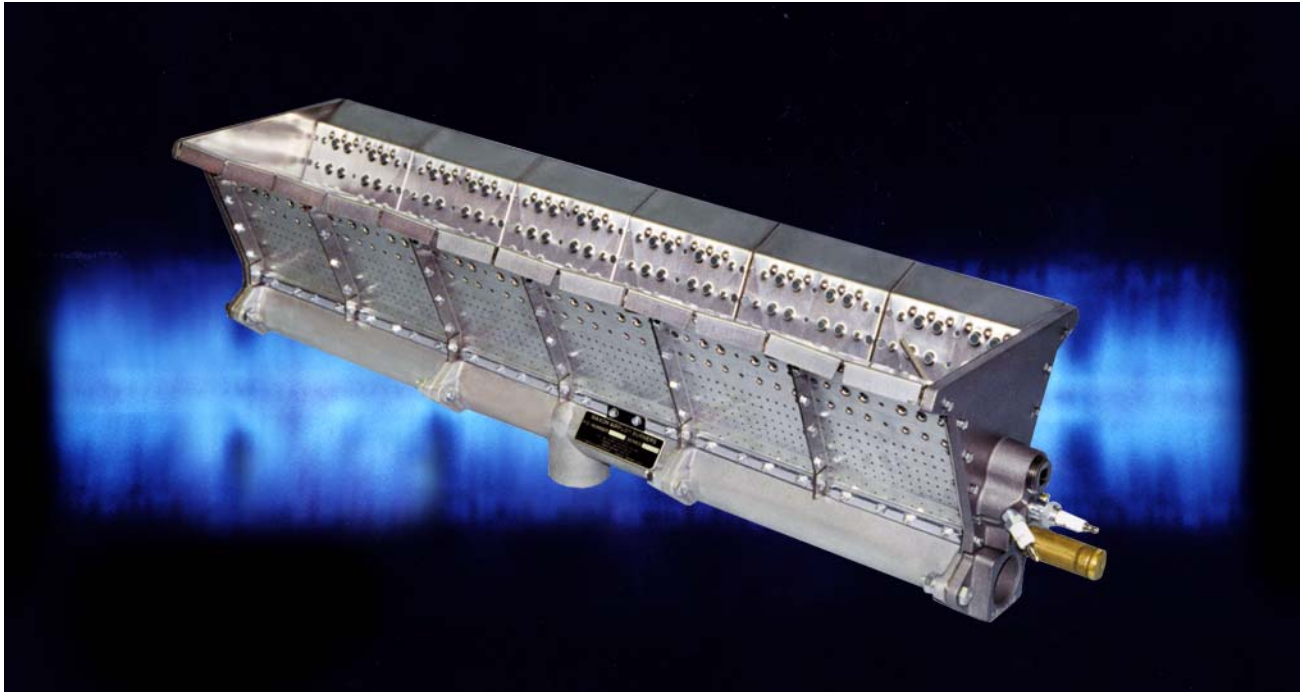


# Series NP-LE AIRFLO®

## In-duct firing line burner



- Designed for direct-fired make-up air and process applications
- Improved emissions performance over MAXON's standard "NP" AIRFLO® Burner, with significantly lower levels of CO and NO<sub>2</sub>
- High capacity - up to 1,000,000 Btu/h/ft
- Short flame length
- Available in low pressure version and corrosion-resistant materials

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COMBUSTION SYSTEMS FOR INDUSTRY

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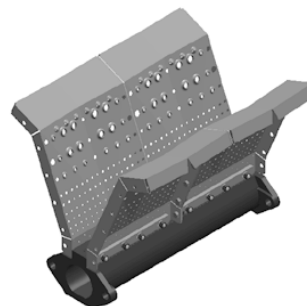
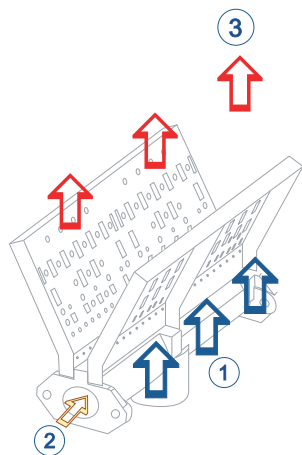
  
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## Product description

### NP-LE AIRFLO® principle

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- 1) fresh air
- 2) fuel / gas
- 3) hot air



MAXON Series NP-LE AIRFLO® burners consist of a robust cast-iron or aluminum burner body (which serves as the gas manifold) drilled to discharge the gaseous fuel between diverging stainless steel mixing plates.

The burners are mounted directly into the air stream being heated. Gaseous fuel is injected into the process air stream. The unique designed V-shaped burner mixing plates are intimately mixing both gas and process air together.

All available heat from the gaseous fuel is released directly into the air stream.

The required oxygen for the combustion is progressively drawn from the process air stream.

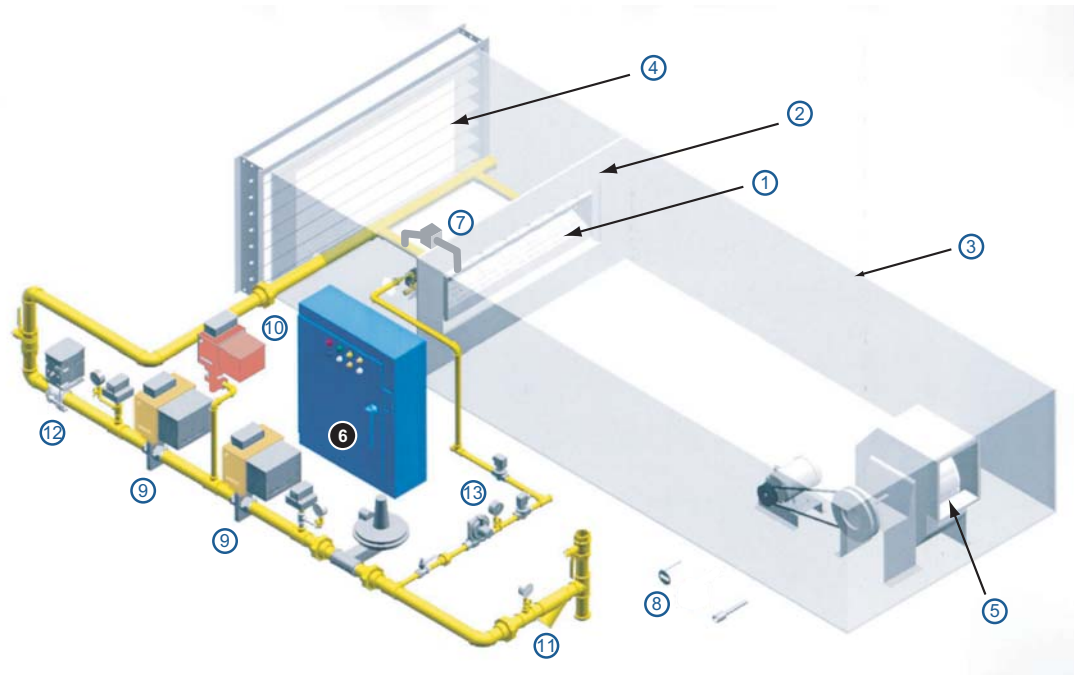
Carefully controlled aeration patterns provide progressive mixing, superior cross-ignition, flame retention and odor-free combustion.

Air velocities across the burner (the key to successful operation) are established by the use of profile plates.

Optimum performance demands that air velocities be uniform across the entire burner.

System components normally used in conjunction with a MAXON NP-LE AIRFLO® burner application

- 1) AIRFLO® burner
- 2) profile plate
- 3) combustion chamber
- 4) intake louvers
- 5) main volume fan
- 6) sequencing control panel
- 7) differential air pressure switch
- 8) high temperature protection
- 9) safety shut-off valves
- 10) vent valve
- 11) gas filter
- 12) control valve
- 13) pilot gas train



## Available product sizes

### For make-up air heating

For fresh, ambient air heating, the NP1-LE and NP2-LE AIRFLO® burner types provide a nominal capacity of 1.0 MBtu/h per foot with a turndown of 30:1. NP2-LE AIRFLO® burners are selected when gas supply pressures are too low for NP1-LE burners.

### For process air heating

NP1-LE and NP2-LE AIRFLO® burners may be used if temperature rise does not exceed 760°F. Upstream process air temperatures should not exceed 600°F. Downstream temperatures should be limited to 1000°F.

NP1-LE and NP2-LE AIRFLO® burners can be supplied with special aluminum alloy bodies for corrosive applications. The use of aluminum alloy bodies limits the maximum allowed upstream process air temperature to 445°F. Downstream temperature should not exceed 840°F.

### Materials of construction

NP1-LE AIRFLO® burners are available in three material choices:

- Standard - cast iron body and end plates
- AL - aluminum body with cast iron end plates
- ALSS - aluminum body and back-up bars, nickle plated end plates, stainless steel fasteners

NP2-LE AIRFLO® burners are available in two material choices:

- Standard - cast iron body and end plates
- AL - aluminum body with cast iron end plates

Typical burner data			
Fuel: natural gas at 60°F with 1000 Btu/ft <sup>3</sup> (st) HHV - sg = 0.6 [1]			
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		NP1-LE	NP2-LE
Maximum capacity per foot [2]	Btu/h	1,000,000	1,000,000
Minimum capacity per foot [3]	Btu/h	25,000	25,000
Natural gas pressure required [2]	"wc	12.8	6.1
Flame length [2]	in	6 - 28	6 - 28
Air velocity required [4]	fpm	1700 - 3000	1700 - 3000
Pressure drop process air [4]	"wc	0.3 - 1.0	0.3 - 1.0
Turndown		30:1	30:1
Fuel gas		natural gas, propane and butane	

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

[2] Higher gas pressure will result in higher heat release per unit and longer flame length. Contact MAXON for more information and performance limits in your particular application. Also see note [3].

[3] Absolute minimum capacity at optimal air flow (velocity and distribution). Minimum capacity influenced by air velocity and burner application. Contact MAXON for your specific installation.

[4] Air velocity for optimal burner performance. The burner will be able to operate within a given range of air velocity. The higher the velocity at a given gas pressure, the shorter the flame length, and the higher the pressure differential of the process air across the burner.

## Applications

Series NP-LE AIRFLO® burners are designed for direct heating of fresh, clean air for low and medium temperature air heating applications.

Typical low temperature applications include humidity-controlled dual stage paint, spray booths, general make-up air applications, packaged units, door heaters, grain drying, malt drying, etc.

Typical high temperature process air applications include spray dryers, chemical dryers, fresh air oven heating, drying, baking and curing operations, metal parts finishing and all fresh air heating applications up to 1000°F .

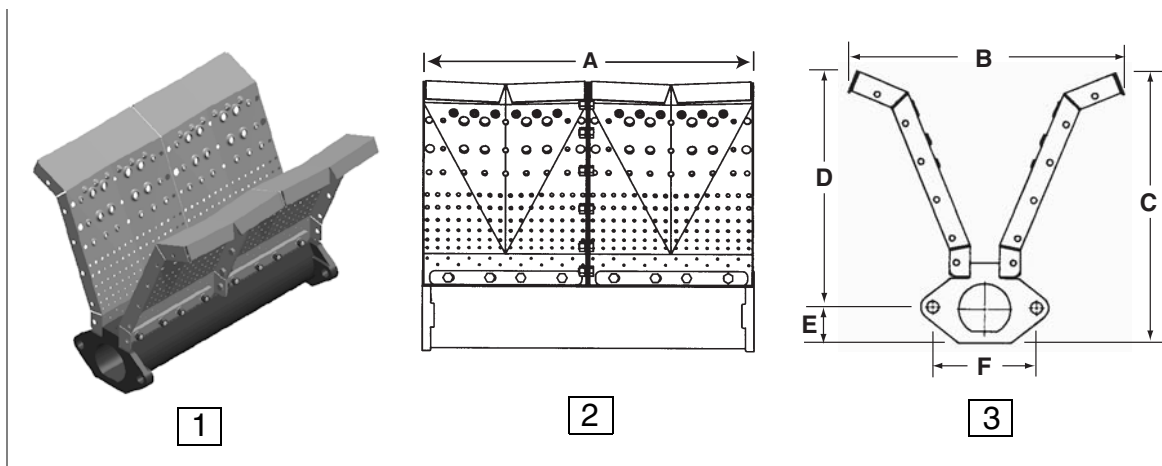
These burners can also be mounted downstream of a steam or hot water coil thus bringing the air to a higher temperature. This can boost the capacity of an existing installation.



Direct air heating with NP-LE AIRFLO® burners in continuous flow dryers for grain

## Dimensions and weights

- 1) NP1-LE AIRFLO® burner
- 2) NP-LE 12" straight section
- 3) Typical end view



Dimensions in inches unless stated otherwise							
Burner type	A	B	C	D	E	F	Weight lbs
NP-LE AIRFLO® burner	12.0	10.0	9.9	8.6	1.3	3.8	8

## Typical emissions (burners only)

MAXON Series NP-LE AIRFLO® burners are especially designed to meet the high demands of most of the local standards on air quality of direct fired make-up air and space heating applications worldwide.

If correctly used within the performance limits as described on page 4-21.6-4, both CO and NO<sub>x</sub> will remain far below the limits as determined in most standards.

Note that incorrect use or use outside the performance limits may seriously affect emissions.

Exact emissions performance may vary in your application. Contact MAXON for information on installation-specific estimates or guarantees. No guarantee of emissions is intended or implied without specific written guarantee from MAXON.

Read "Specifications of NP-LE AIRFLO® burners" for complete information on these burner types.