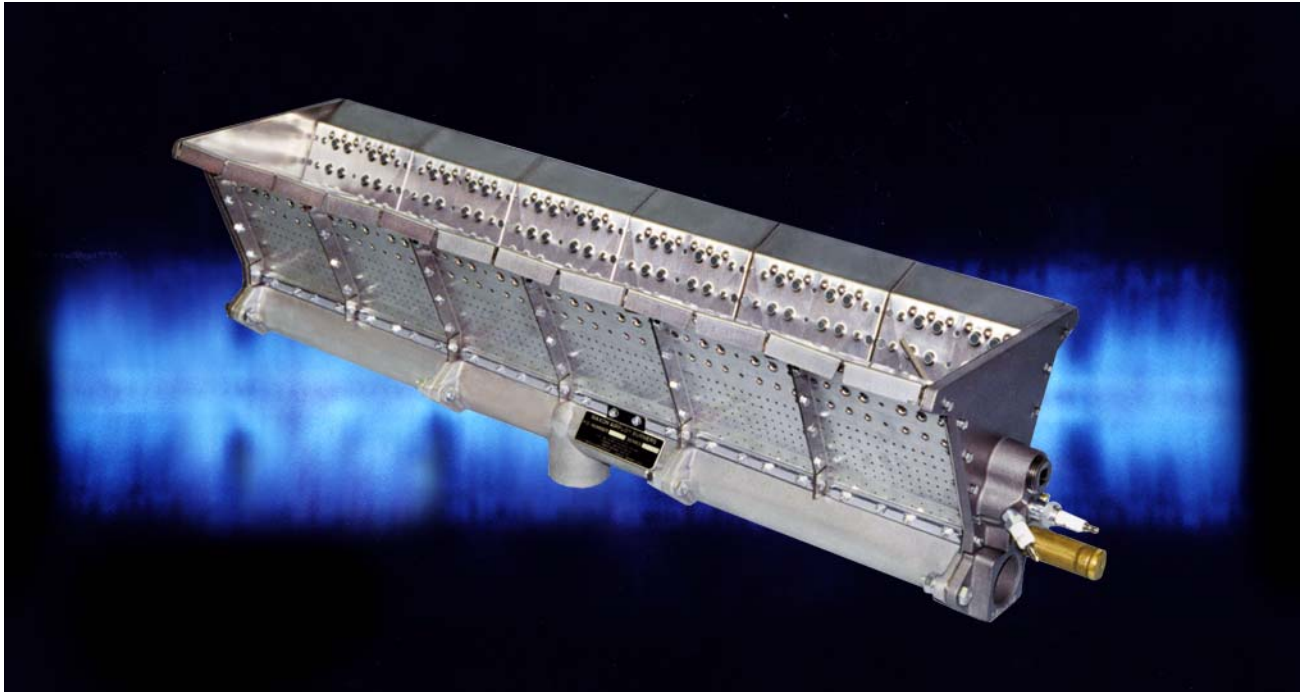


Series NP-LE AIRFLO®

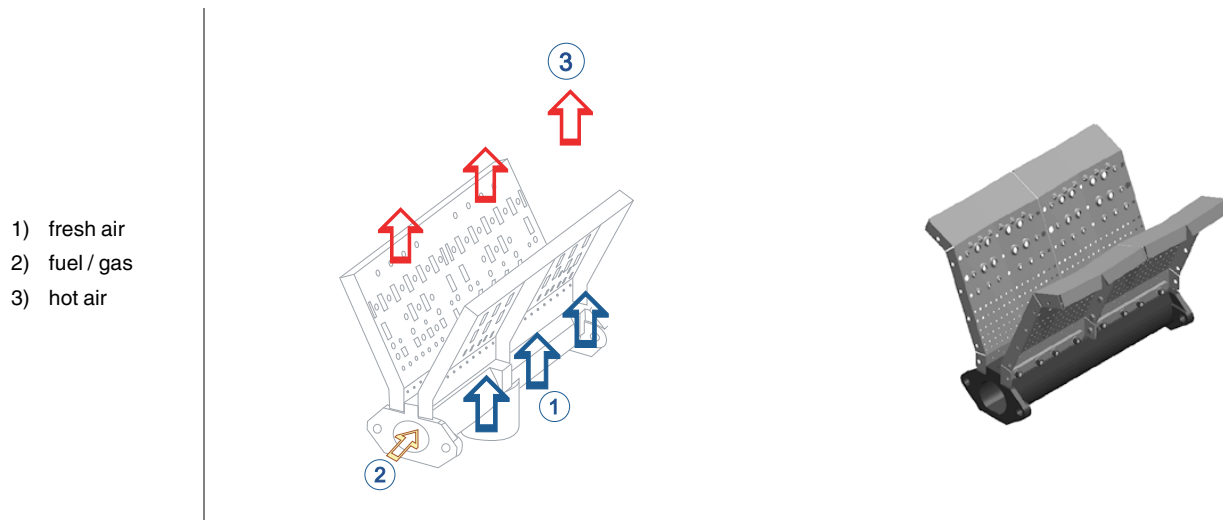
In-duct firing line burner



- 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 NO₂
- High capacity - up to 300 kW/ft
- Short flame length
- Available in low pressure version and corrosion-resistant materials

Product description

NP-LE AIRFLO® principle



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.

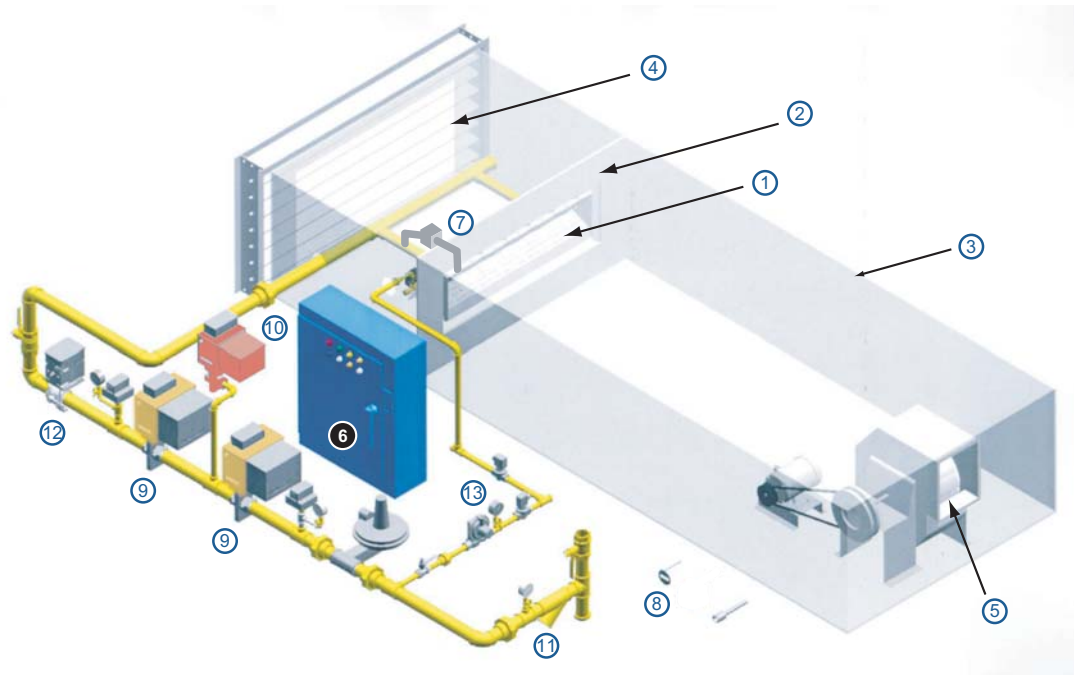
Carefully controlled aeration patterns provide progressive mixing, superior cross-ignition, flame retention and odor-free combustion.

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 300 kW 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 400°C. Upstream process air temperatures should not exceed 315°C. Downstream temperatures should be limited to 540°C.

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 230°C. Downstream temperature should not exceed 450°C.

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 15°C with 10.9 kWh/Nm ³ HHV - sg = 0.6 [1]			
Combustion air: 15°C - 21% O ₂ - 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] [5]	kW HHV	300	300
Minimum capacity per foot [3] [5]	kW HHV	7	7
Natural gas pressure required [2]	mbar	31.7	15.2
Flame length [2]	mm	150 - 700	150 - 700
Air velocity required [4]	m/s	8.5 - 15	8.5 - 15
Pressure drop process air [4]	mbar	0.75 - 2.5	0.75 - 2.5
Turndown		30:1	30:1
Fuel gas		natural gas, propane and butane	

[1] sg (specific gravity) = relative density to air (density air = 1.293 kg/Nm³)

[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. 1 foot = 305 mm

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.

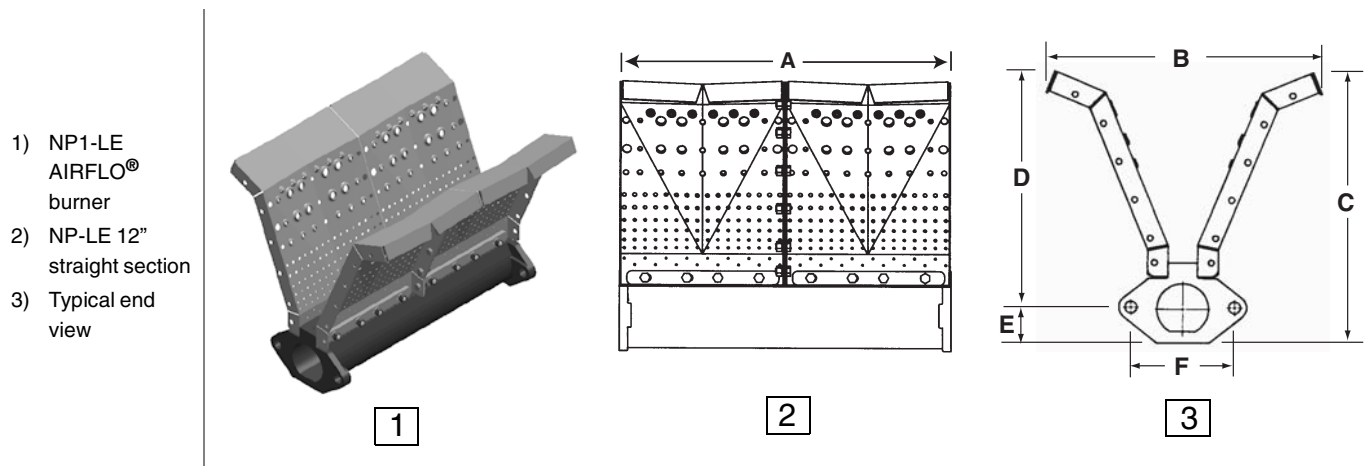
Typical high temperature process air applications include spray dryers, chemical dryers, fresh air oven heating, drying, baking and curing operations, metal parts finishing and all fresh air heating applications up to 540°C.

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



Dimensions in mm unless stated otherwise							
Burner type	A	B	C	D	E	F	Weight kg
NP-LE AIRFLO® burner	305	254	251	218	33	97	3.6

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_x 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.