



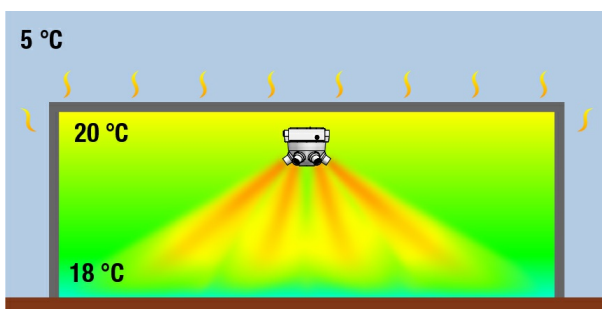
MULTI-DIRECTIONAL AIR HEATER

NOZ₂
gas

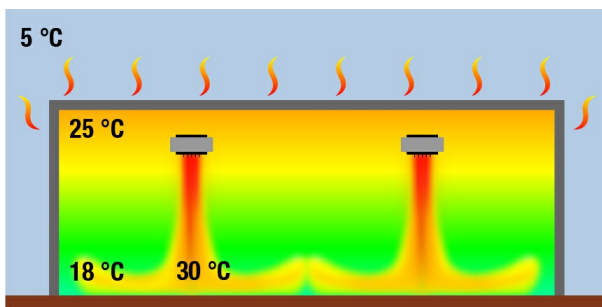


Energy-efficient heat source provides comfort in large rooms

When it comes to providing large, and often high buildings, with the best possible source of efficient heating Biddle has the solution; an air heater that easily surpasses other air heaters. Combining high energy savings with a comfortable working environment is a challenge that the NOZ₂ takes on with verve. The NOZ₂ meets these requirements with its compelling customer benefits such as optimal distribution of air and minimal loss of heat.



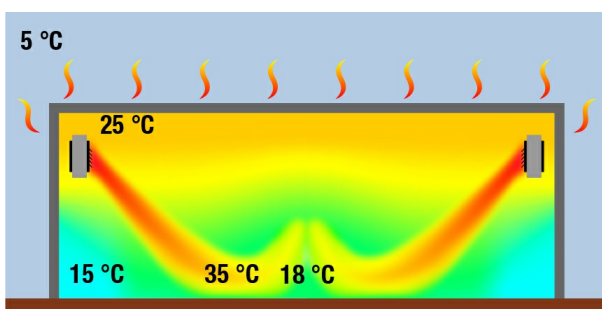
Biddle NOZ₂ air heater:
optimal air distribution & minimal heat loss



Energy-saving climate control

The NOZ₂ air heater is the ideal energy-efficient solution.

The NOZ₂ minimises temperature differences in the room and heat loss to the outside environment. Warm air naturally rises up to the ceiling. Adjustable nozzles gradually re-distribute the warm air from the ceiling to the floor level. Warm air is discharged downward through the nozzles with high velocity and induces movement of the surrounding air. As a consequence heated air is distributed optimally throughout the room. The NOZ₂ has a large influence area, which means fewer devices may be required. The temperature at the top of the room drops considerably by using the inducing effect of the NOZ₂. As a result, less heated air escapes outside via the roof and walls, which results in considerable energy savings. Furthermore on average 15% less power is consumed to heat up the room than with conventional heating devices.



Conventional ceiling and wall heaters:
large temperature differences & high heat loss

Gas multi-directional heaters are red hot

The range of gas multi-directional air heaters from Biddle have proven an instant hit with customers needing to heat large commercial and industrial facilities. Discharging warm air at high speed through fully adjustable nozzles, they induce the movement of surrounding air to enable a good mixing of temperature profiles throughout buildings between 4 and 10m (13 - 32 ft) high.



Benefits

Energy-saving climate control

- Gas heating consumption reduced by 15%
- Optimal air distribution: large influence area & fewer devices (adjustable nozzles)
- Efficient re-use of energy
- Minimised heat loss

Gas multi-directional heaters

- Comfortable indoor climate
- High air displacement due to induction effect
- Highly efficient modulating gas burner
- Supplied with Multitherm thermostats for enhanced comfort and efficiency

And even more

- No need for de-stratification fans
- High performance EC-fans
- Adjustable discharge pattern
- Also models available for water heating, ambient and ventilation applications



Various heat sources

The NOZ₂ can be configured to be suitable for any desired heating source including water heating, ambient, gas and/or ventilation models.

Applications

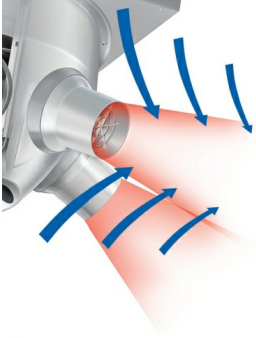
The NOZ₂ gas air heaters are an ideal choice for applications such as factories, warehouses, retail units, exhibition centres and car showrooms.

Leading references:

- AKZO Nobel
- Daimler Chrysler
- Edeka
- Ford
- Grolsch
- MAN
- Opel



Optimum air distribution by induction



The air jet causes surrounding stagnant air to move (induction)

The NOZ₂ is equipped with six individually adjustable nozzles. The nozzles determine the air direction and thus the depth and the area of influence of the air heater. Warm air is blown out through the nozzles at high speed. The air jet from the NOZ₂ draws in the surrounding, stationary air, so that a good mixture of air is achieved. This is the inductive effect of the air heater. The heat is quickly and evenly distributed throughout the large space. As a result, outside heat loss through the ceiling and walls is minimised. Due to the strong inductive effect, the induction air flow rate of 10 times the primary air displacement, the temperature gradient is only 0,25 °C per metre (0,13 °F per ft) contrary to conventional air heaters. The large area of influence of the NOZ₂ is one of the reasons why fewer units can comfortably heat a large space. By applying a NOZ₂ on average 15% will be saved on the power consumption (kW) (based on ISSO 57 heat loss calculation - The Netherlands).



Benefits

Induction

- Quick and even air distribution throughout the room
- Minimum heat loss through ceiling and walls
- Low temperature gradient (minimum difference in temperature)
- Large air displacement due to induction
- Fewer units due to large area of influence

Highly efficient gas air heater

The NO₂ Gas air heater has an integrated gas burner. This gas burner draws in air from outside and exhausts combustion gases externally (closed system). Isolated from this system, the heated intake air of the NO₂ is discharged into the room. The standard unit is equipped with an isolation switch that disconnects the entire unit from the electrical supply. The gas burner in the unit is controlled by the MultiTherm C thermostat.



MultiTherm C

Multitherm C

The NO₂ Gas is fitted with energy-efficient EC fans, which makes the intelligent regulation of this model possible. The MultiTherm C thermostat is connected to the control electronics in the air heater. The gas burner starts automatically when the unit's fan is turning and heat is required. If heat builds at the top of the room, the fan in the NO₂ forces this heat down, causing it to be distributed throughout the room. Controls within the NO₂ measure the temperature difference between the top and bottom of the room using two temperature sensors, one on the unit and one in the room thermostat. If the temperature difference becomes too large, the hot air above is forced down into the room, while the unit stops heating until the temperature difference is eliminated. The result is good air distribution throughout the entire room. An external sensor (accessory) may be used to measure temperature at another location in the room.

Control of multiple units

A single MultiTherm C control panel can be used to regulate a maximum of 5 units.



Benefits

Gas version

- Highly efficient modulating gas burner
- Supplied with Multitherm thermostats for enhanced comfort and efficiency
- Best possible air distribution
- Control of max. 5 units

A suitable solution for every situation



Possibilities:

- Suspended ceiling model (recirculation)
- For ceiling heights between 4 - 10 m (13 - 32 ft)
- One model: NOZ₂ 25 (small range)
- Gas heating: capacity 30 kW / 102 kBTU/h
- Supply NOZ₂ 25: 230V

Heat source:

- Gas
- Water & ambient: information available upon request

Gas types

- G20 - Natural gas
- G31 - Propane gas

Control options:

- MultiTherm C with integrated timer

Ideal discharge direction

To optimise the distribution of the discharged air, the nozzles can be adjusted. The ideal discharge direction depends on the influence area and the mounting height. These two factors have a significant influence on the nozzle angle. For the correct setting of the nozzle angle see the general NOZ₂ brochure.

Specifications

Casing: the casing of the air heater is made of zinc plated sheet steel and has an inspection panel at the side. The cone, nozzles and the ring are made of plastic. The unit is delivered as a standard in two colours: in RAL 5011/RAL9006 (steel blue/aluminium) and completely in RAL 9006 (aluminium). Other RAL colours are available at an extra charge.

Motor / fan assembly: The diagonal fan is made up of a plastic (NOZ₂ 25) and an external rotor motor with EC technology. If overheated, the motor is protected by thermal contacts, which will break the electric circuit.

Gas connection: The gas connection for the NOZ₂ 25 is G ½". The connection is on top of the unit.



Gas version

With regard to control and mounting of the NO₂ gas air heater various accessories are available.

Standard delivery:

- Energy efficient EC fans
- Integrated isolation switch

Control / operation:

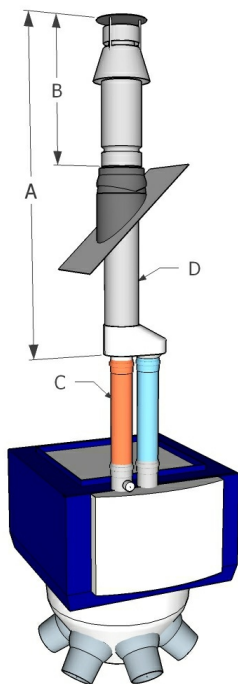
- MultiTherm C

Control accessories MultiTherm C:

- Control panel MultiTherm C with integrated timer
- External sensor for MultiTherm C

Various flue pipe components optional:

- Roof terminal: standard and long
- Wall terminal
- Weather slate: for angled or flat roofs
- Flue pipe sections - straight: Ø 80 mm (3 5/32"), lengths: 0,25 - 0,5 - 1,0 - 2,0 m (10" - 20" - 40" - 80")
- Flue pipe sections - elbow: Ø 80 mm (3 5/32"), 90° and 45°
- Wall bracket: Ø 80 mm (3 5/32")



Roof terminal

	roof terminal			
	standard		long	
	mm	in	mm	in
A	1280	50 13/32"	1850	72 27/32"
B	500	19 11/16"	955	37 19/32"
C	Ø 80	Ø 3 5/32"	Ø 80	Ø 3 5/32"
D	Ø 125	Ø 4 15/16"	Ø 125	Ø 4 15/16"

The maximum equivalent length for flue gas discharge is 9m (29 ft). For every 90° elbow deduct 2m (6 ft) and for every 45° elbow deduct 1m (3 ft). The maximum dry length is 4m (13 ft) - straight.



Suspension frame

Installation:

There are two options for the installation of the NO₂:

- Optional: suspension frame for quick and easy installation
- M8 threaded rods

Specifications

Casing

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Motor / fan assembly

The diagonal fan is made up of a plastic (NOZ₂ 25) and an external rotor motor with EC technology. If overheated, the motor is protected by thermal contacts, which will break the electric circuit.

Gas connection

The gas connection for the NOZ₂ 25 is G ½". The connection is on top of the unit.



NOZ₂ 25-G20 (metric)

mounting height	m	2.8 - 8.5	
electrical supply	V/ph/Hz	230/L1-L2/60	
max. input current	A	2,35	
max. fan power	kW	0,53	
weight	kg	66	
gas type		Nat. G20	
gas connection		G 1/2" (F)	
nom. heat input	kW	20.5 - 32	
nom. heat output	kW	19.1 - 29.2	
max. gas consumption	m ³ /h	3,4	
speed		min.	max.
air volume	m ³ /h	1750	3170
sound pressure level at 5m	dB(A)	42	58

NOZ₂ 25-G20 (imperial)

mounting height	ft	9 - 28	
electrical supply	V/ph/Hz	230/L1-L2/60	
max. input current	A	2,35	
max. fan power	kW	0,53	
weight	lb	144	
gas type		Nat. G20	
gas connection		G 1/2" (F)	
nom. heat input	kBTU/h	70 - 109	
nom. heat output	kBTU/h	65 - 100	
max. gas consumption	SCFM	2	
speed		min.	max.
air volume	cfm	1030	1865
sound pressure level at 5m	dB(A)	42	58

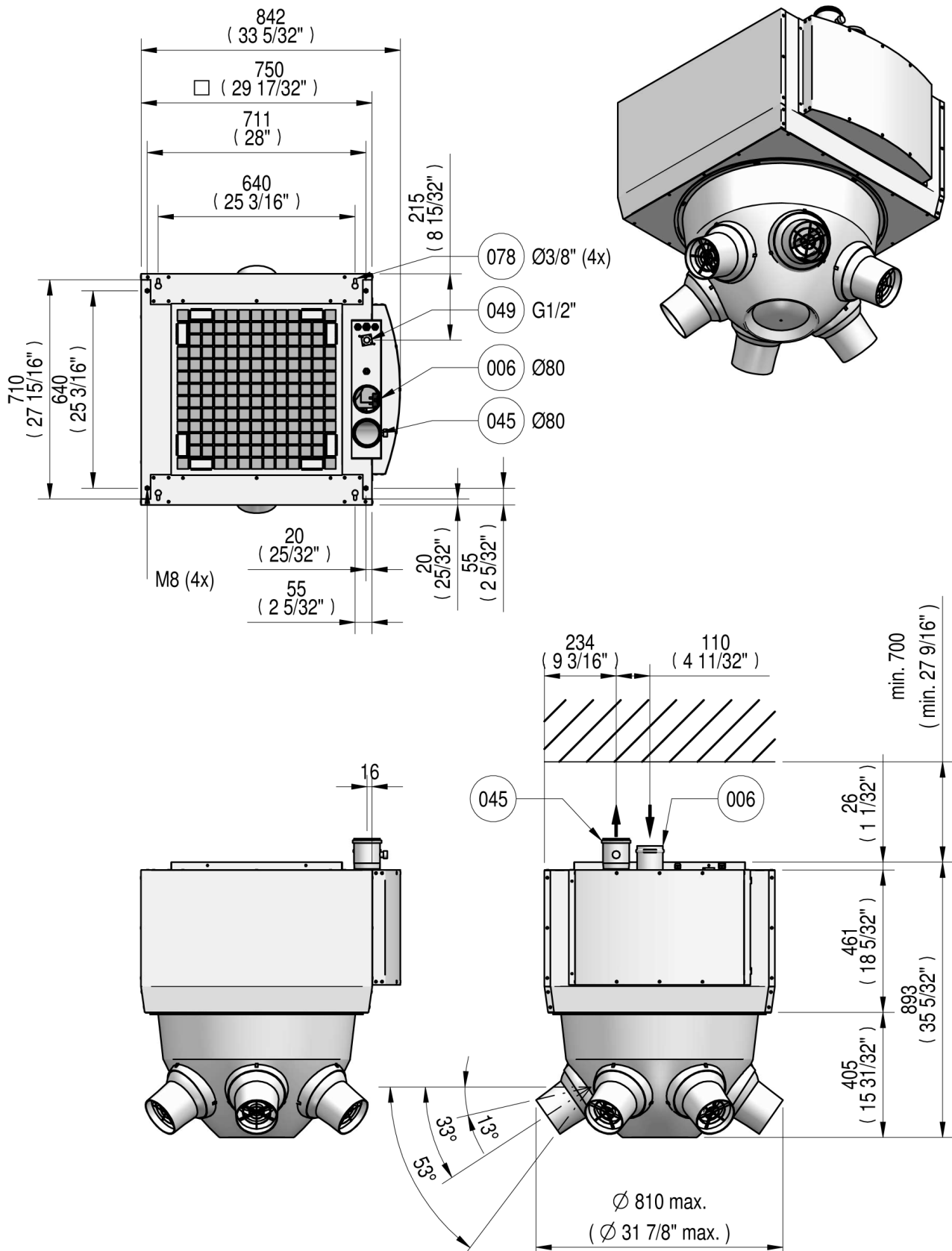
NOZ₂ 25-G31 (metric)

mounting height	m	2.8 - 8.5	
electrical supply	V/ph/Hz	230/L1-L2/60	
max. input current	A	2,35	
max. fan power	kW	0,53	
weight	kg	66	
gas type		LP G31	
gas connection		G 1/2" (F)	
nom. heat input	kW	20.5 - 32	
nom. heat output	kW	19.1 - 29.2	
max. gas consumption	m ³ /h	2,5	
speed		min.	max.
air volume	m ³ /h	1750	3170
sound pressure level at 5m	dB(A)	42	58

NOZ₂ 25-G31 (imperial)

mounting height	ft	9 - 28	
electrical supply	V/ph/Hz	230/L1-L2/60	
max. input current	A	2,35	
max. fan power	kW	0,53	
weight	lb	144	
gas type		LP G31	
gas connection		G 1/2" (F)	
nom. heat input	kBTU/h	70 - 109	
nom. heat output	kBTU/h	65 - 100	
max. gas consumption	SCFM	1,5	
speed		min.	max.
air volume	cfm	1030	1865
sound pressure level at 5m	dB(A)	42	58

NO₂ gas



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Biddle Air Systems Limited

11 King St. Unit #3
Barrie, ON L4N 6B5
Canada

T 705-797-0007 / 1-866-693-4333 (toll free)
E biddle@biddle.ca
I www.biddle.ca