



Air Rotation

AIR ROTATION FOR WAREHOUSES & DISTRIBUTION CENTRES



 **NORDAIR**
NICHE COMBINED HEATING AND VENTILATION

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Introduction

Nordair Niche is one of the UK's leading specialists in the design and manufacture of gas fired heating equipment.

The Nordair Niche air rotation units are ideal for applications such as distribution centres and warehouses requiring frost protection or constant background temperatures.

The system provides even heating over large areas and eliminates the requirement for ductwork or de-stratification fans.

Simple fast track installation provides an economic and efficient solution with low ongoing maintenance costs.

The current range of CE approved units have a thermal efficiency in excess of 91% and are therefore eligible for Enhanced Capital Allowances to qualifying end users



Features and Benefits

- Large areas heated by a single unit so that number of units is reduced to a minimum
- Fewer units, all sited at low level reduces ongoing maintenance costs
- Modular Reznor RHC coils for enhanced reliability
- No requirement for high level de-stratification fans
- No requirement for costly ductwork installation
- Higher thermal efficiency for reduced running costs
- Heat outputs up to 600kW from single unit
- High burner turndown ratio for closer temperature control
- Units may be flued via simple wall outlets
- Enhanced reliability with multi-try ignition, and dual heat exchangers and fans



Options

- Gas, propane, oil and LPHW fuel types available
- Internal and external units
- External units fully weatherproofed and complete with insulated panels
- Balanced flue with combustion air fan located externally
- Controls upgrade to trend IQ3 Excite
- Fresh air and recirculation options
- Bespoke non-standard heights to suit application if required
- De-stratification only units also available

ECA



The Government's Enhanced Capital Allowance scheme actively encourages industry and commerce to reduce energy consumption by promoting the use of energy efficient equipment.

This symbol verifies that the product has been independently assessed and qualifies for the ECA scheme, an upfront tax relief enabling businesses that invest in energy-saving equipment to claim 100% first-year capital allowances against their taxable profits.

The Stratification Problem

Hot air, which is less dense and therefore lighter than cold air, will rise while cold air tends to fall. This fundamental law of physics has a negative effect on conventional air heating systems where the discharge air temperature is often around 45-50 °C. As a result the discharge air does not easily mix with the air in the building and instead tends to rise to high level.

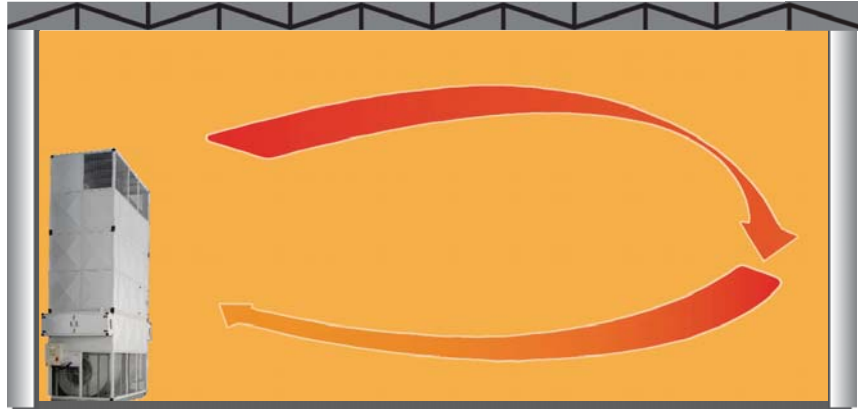
Cold air entering at floor level accelerates the migration of warm air to the top of the building and increases the temperature gradient between the floor and the roof level.

This layer of cold air forms at low level making it increasingly difficult to maintain the required temperature, resulting in cold zones around the building.

To overcome this problem it is necessary to install either a large number of high level de-stratification fans in conjunction with conventional heaters or an extensive amount of ductwork to achieve even temperature distribution and to re-cycle hot air back down to floor level.



The Air Rotation Solution



Air Rotation provides a simple cost effective solution by utilising a much greater supply air volume with only a low temperature rise.

The system draws in the cooler air at low level and rotates the air to high level where it mixes with the warmer air. This develops a gentle airflow pattern, displacing the high level hot air and returning it to floor level to provide automatic de-stratification.

When additional heat is required the supply air is tempered to give a minimal temperature difference between air discharge and the space temperature so that the natural tendency of the hot air to stratify is virtually eliminated. The rotation of large air volumes of tempered air provides even wall to wall and floor to roof temperature distribution and allows heat gains from lighting and other

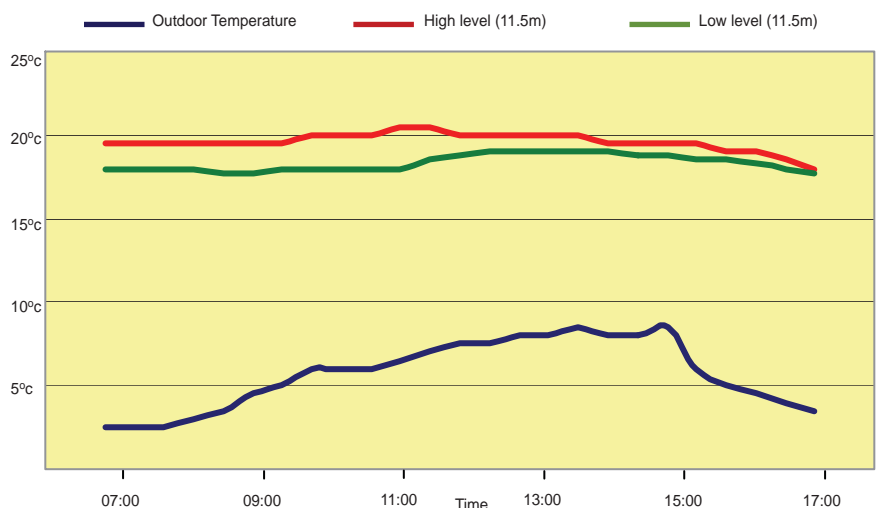
sources to be re-circulated to low level to reduce energy consumption.

The units have a turndown ratio of 4:1 to ensure that the optimum amount of heat can be supplied to meet changing building requirements.

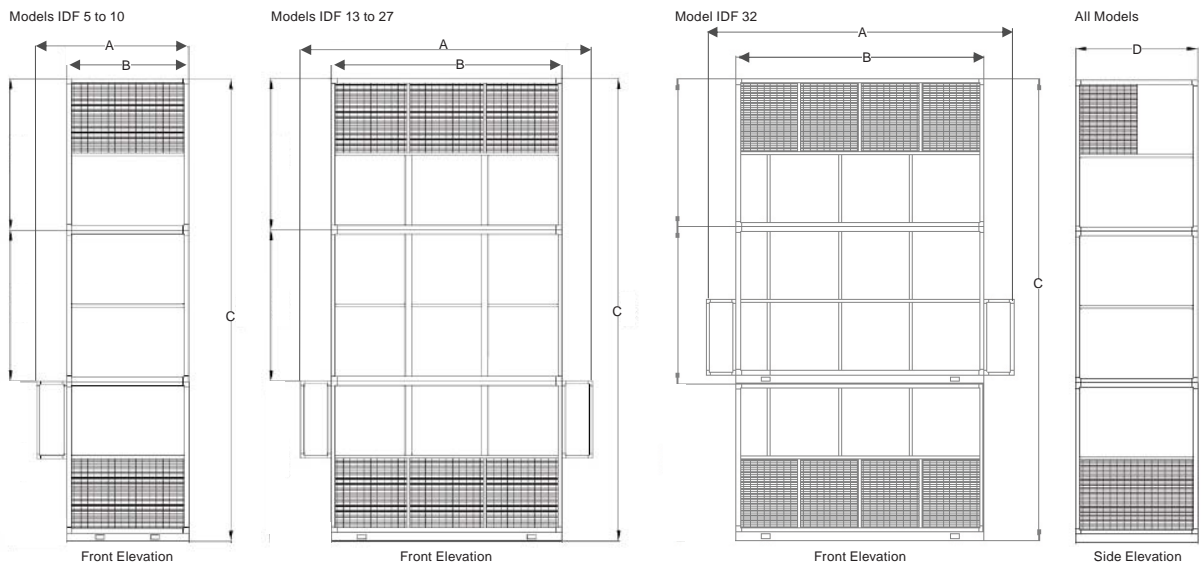
An integral control system monitors the temperature at high and low level within the building and adjusts the discharge temperature to maintain optimum heat distribution.

The fan assisted flues from the unit can be terminated through either the roof or wall.

The simple wall terminal eliminates the requirement for costly flue systems in tall buildings and associated roof penetrations.



Actual temperature readings for a 12m high warehouse with a target temperature of 16°C during a normal working day showing the minimal temperature gradient between high and low level with air rotation unit in operation.



STANDARD DIMENSIONS

Model	IDF5	IDF8	IDF10	IDF13	IDF16	IDF21	IDF27	IDF32
A (overall width) mm	2604	2604	2604	4690	4690	4690	4690	5200
B (unit width) mm	2104	2104	2104	3690	3690	3690	3690	4200
C (height) mm	7223	7451	7581	7378	7471	7605	7758	7891
D (depth) mm	1250	1760	2144	1627	1800	2144	2144	2144

TECHNICAL DATA

Model	Type	Heat Output kW	Flue mm	Natural Gas Rate (G20) m ³ /h	Airflow m ³ /s	Motor Size kW
IDF5	IDF5-50 V	50	1 x 130	5.92	5m ³ /s	Single 3kW Motor
	IDF5-75 V	75		8.73		
	IDF5-100 V	100		11.45		
IDF8	IDF8-75 V	75	1 x 130	8.73	8m ³ /s	Single 4kW Motor
	IDF8-100 V	100		11.45		
	IDF8-125 V	125		14.63		
	IDF8-150 V	150		17.44		
IDF10	IDF10-100 V	100	1 x 130	11.45	10m ³ /s	Single 5.5kW Motor
	IDF10-125 V	125		14.63		
	IDF10-150 V	150		17.44		
	IDF10-175 V	175		20.19		
	IDF10-200 V	200		23.28		
IDF13	IDF13-100 V	100	2 x 130	11.84	13m ³ /s	Twin 4kW Motor
	IDF13-150 V	150		17.46		
	IDF13-200 V	200		22.90		
	IDF13-250 V	250		29.26		
IDF16	IDF16-150 V	150	2 x 130	17.46	16m ³ /s	Twin 4kW Motor
	IDF16-200 V	200		22.90		
	IDF16-250 V	250		29.26		
	IDF16-300 V	300		34.88		
IDF21	IDF21-200 V	200	2 x 130	22.90	21m ³ /s	Twin 7.5kW Motor
	IDF21-250 V	250		29.26		
	IDF21-300 V	300		34.88		
	IDF21-350 V	350		40.38		
	IDF21-400 V	400		46.56		
IDF27	IDF27-300 V	300	2 x 130	34.88	27m ³ /s	Twin 11kW Motor
	IDF27-350 V	350	2 x 130	40.38		
	IDF27-400 V	400	2 x 130	46.56		
	IDF27-500 V	500	4 x 130	58.52		
IDF32	IDF32-350 V	350	2 x 130	40.38	32m ³ /s	Twin 11kW Motor
	IDF32-400 V	400	2 x 130	46.56		
	IDF32-500 V	500	4 x 130	58.52		
	IDF32-600 V	600	4 x 130	69.76		

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