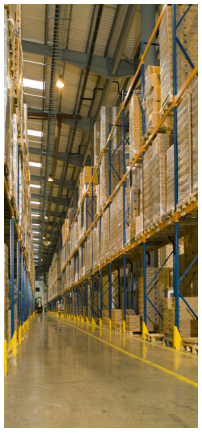
Air Rotation for Warehouses & Distribution Centres



NORDAIR NICHE
COMBINED HEATING AND VENTILATION

Air Rotation

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
- Simple fast track installation, reduced gas pipe work and electrical wiring: lower installation costs
- 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

Typical Installations

Bosch

Floor area: 44000m^2
Height: 12m
No. of units: 4

Maplin

Floor area: 15640m^2
Height: 12m
No. of units: 3

Carlsberg

Floor area: 14000m^2
Height: 9m
No. of units: 2

Hallmark Cards

Floor area: 7412m^2
Height: 8m
No. of units: 1

Enhanced Capital Allowances (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. Enhanced Capital Allowances allow qualifying end users to offset 100% of equipment and directly associated installation costs against taxable profits.

Qualified for Energy Technology List www.eca.gov.uk TM
Authorised User No. 00165

This symbol verifies that the product has been independently assessed and qualifies for the ECA scheme.

AmbiRad • reducing carbon emissions for 25 years •

The Stratification Problem

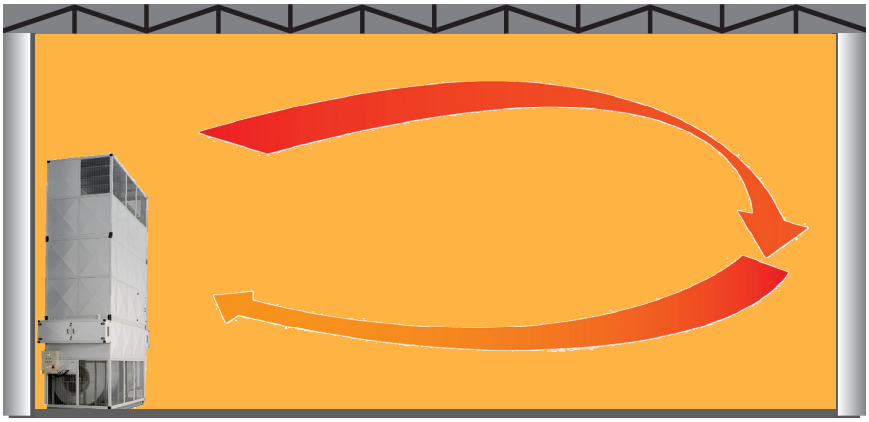
Hot air, which is less dense and therefore lighter than cold air, will rise while cold air tends to fall. This fundamental law of physics has a negative effect on conventional air heating systems where the discharge air temperature is often around 45-50 °C. As a result the discharge air does not easily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

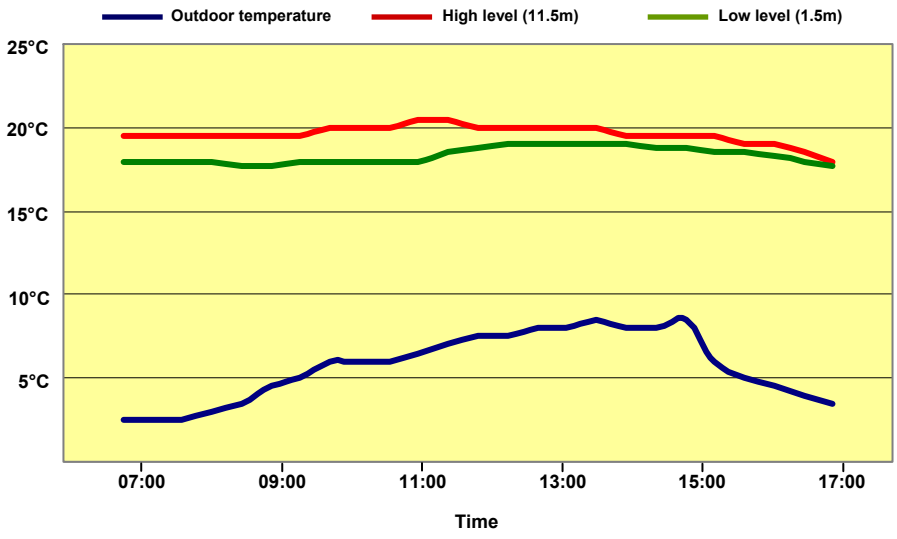
When additional heat is required the supply air is tempered to give a minimal temperature difference between air discharge and the space temperature so that the natural tendency of the hot air to stratify is virtually eliminated. The rotation of large air volumes of tempered air provides even wall to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

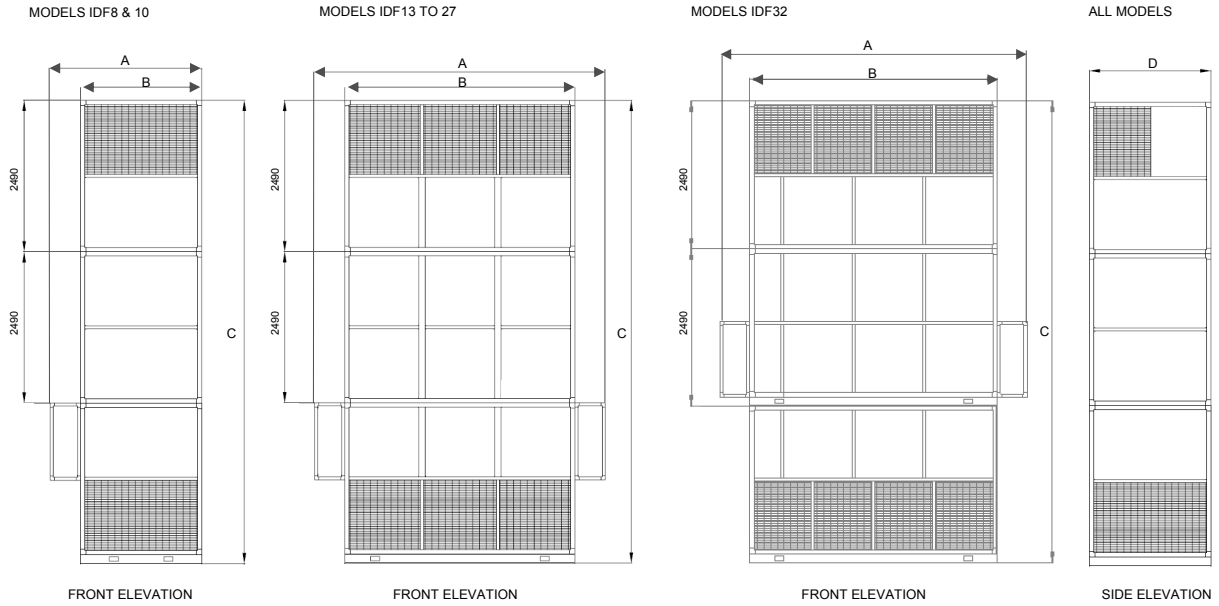
The fan assisted flues from the unit can be terminated through either the roof or wall.

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.

DIMENSIONS



DIMENSIONS

Model		IDF5V	IDF8V	IDF10V	IDF13VAR	IDF16VAR	IDF21VAR	IDF27VAR	IDF32VAR
A	mm	2604	2604	2604	4690	4690	4690	4690	5200
B	mm	2104	2104	2104	3690	3690	3690	3690	4200
C	mm	7223	7451	7585	7349	7471	7605	7758	7891
D	mm	1250	1760	2144	1627	1800	2144	2144	2144

Standard units comprise of 3 modules, fan & heat exchanger module, extension plenum and air discharge module.
Each module is constructed from 70mm aluminium framework for maximum strength and durability. All panels are manufactured from Aluzinc corrosion resistant steel.
Each section is supplied complete with assembly brackets for fast simple installation.
All units are fully tested prior to despatch.

TECHNICAL DATA

Model		IDF5V	IDF8V	IDF10V	IDF13VAR	IDF16VAR	IDF21VAR	IDF27VAR	IDF32VAR
Maximum heat output	kW	100	150	200	250	300	400	400	600
Gas rate Natural gas G20	m^3/h	11.00	17.44	23.28	29.26	34.88	46.56	46.56	64.00
Air flow (max)	m^3/s	5.00	8.00	10.00	13.00	16.00	21.00	27.00	32.00
Motor size	kW	4.0	4.0	7.5	2 x 3.0	2 x 4.0	2 x 7.5	2 x 11.0	2 x 11.0

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