



LOWERING  
THE COST  
OF HIGH  
CEILINGS™

in partnership with

**ZOO FANS™**  
*Efficiency and Performance*

The Carbon Trust recommends destratification as an effective energy-saving strategy.\*

# WHY CHOOSE ZOO FANS?™



## Fast Payback

ZOO Fans create even temperatures from floor-to-ceiling and wall-to-wall that make it easier and more efficient to heat or cool a building. HVAC systems run less and energy costs go down. Noticeably improve comfort and watch productivity and sales increase. Typical payback periods of 1-3 years. Most of the ROI occurs in less than 2 years.

## Environmentally Conscious

ZOO Fans will improve air circulation and thermal comfort in new and existing facilities. With ZOO Fans you can use less energy, service and replace HVAC systems less often and, reduce or eliminate ducting; these are all good ways to reduce carbon footprint. Visit our website to see the many ways ZOO Fans can contribute to SBEM and energy efficient funding.

## Small fans, big savings!

ZOO Fans are the most efficient and effective small destratification fans on the market. Rigorous independent testing proves that ZOO Fans use less energy to move air than the competition—that means fewer fans, lower installation costs, and lower operating costs.

## These fans go where others won't

They're easy to install around obstructions such as lighting or overhead cranes. The directed column of air is perfect for aisles or avoiding sensitive areas, and ZOO Fans' enclosed housing will never cause a strobe effect with lighting or interfere with fire suppression equipment.

## Keep them safe, make them happy

Warm-up the floor and help keep it dry, reduce condensation on equipment, eliminate hot and cold spots. Relaxed, comfortable people work more, play more, buy more—and smile more!

**Improve air circulation in almost any building—  
heated, air-conditioned, or not conditioned at all.**



Overheating results in significantly more energy consumption than necessary and usually creates hot and cold spots in a building.

**A ZOO FAN CREATES A GENTLE,  
CONCISE COLUMN OF AIR  
THAT BRINGS WARM AIR DOWN  
TO FLOOR LEVEL, DESTRAFIFIES  
THE SPACE AND REDUCES THE  
TEMPERATURE DIFFERENTIAL  
TO AS LOW AS 1° OVERALL.**

# OPEN CEILING

- Ceilings from 2.5m to 30m
- Perfect for aisles
- Manual or BMS variable speed control
- Concise column of air is easy to direct
- Third-party tested in an AMCA-certified lab
- Innovative, patented blade design delivers unmatched efficiency and performance
- Includes fast-locking hardware for quick and easy installation—6X faster than traditional methods



# DROP CEILING

- Ceilings from 2.5m to 15m
- Blends seamlessly with existing fixtures
- Quiet operation, Energy Star® rated motors
- Manual or BMS variable speed control
- Does not interfere with existing HVAC system
- Eliminates the need for space heaters
- Specially designed acoustic package available for silent operation in sound-sensitive settings



# ZOO FAN BENEFITS...

Raise  
Productivity

Lower  
Energy  
Costs

Improve  
Comfort

Increase  
Sales

# ZOO FAN ZFH

## Destratification Ceiling Mounted Fan

### QUICK FACTS

- ✓ 2 standard sizes from 250mm to 300mm.
- ✓ Air volume flow rates up to 0.593m<sup>3</sup>/s (AC) and 0.656m<sup>3</sup>/s (EC).
- ✓ High quality Ziehl-Abegg FE2owlet.
- ✓ Suitable for operating temperatures up to +70°C.
- ✓ Fully speed controllable.
- ✓ Available in **AC** & **EC**.

### CASING

The Fire-Resistant (5VB), UV-treated PC ABS plastic housing provides a long lasting and robust construction.

### IMPELLER

Impellers are high quality Ziehl-Abegg FE2owlet in high performance composite material providing enhanced aerodynamic properties and reliability, dynamically balanced to ISO 14694 Grade G6.3, and finished in black (RAL 9005).

### MOTORS

Motors are highly efficient AC or EC, lightweight external rotor motors suitable for speed control. Each motor has integral overload protection. Fans are supplied with a fitted IP54 terminal box, which allows the fan to be positioned conveniently to incoming electrical inputs.

### QUALITY MANAGEMENT

Units are to be designed and manufactured with procedures as defined in BS EN ISO 9001:2008. All ZFH units are to be tested to ISO 5801:2007 (airside performance) and BS 848 Part 2:1985 (sound performance).

### TYPICAL APPLICATIONS

- Factories
- Sports Halls
- Shops
- Industrial units
- Warehousing

# ZOO FAN ZFH

## Performance, SFP & Electrical Data



SINGLE Phase - 220V to 240V / 50Hz or 60Hz

Product Code	Frequency (Hz)	Motor Electrical Data			r/min	Max Volume m <sup>3</sup> /s	Max Operating Temp °C	dBA @3m	
		FLC Amps	SC Amps	Input kW				Inlet	Outlet
ZFH250/4-1AC	50	0.24	0.40	0.048	1370	0.265	55	Inlet	37
								Outlet	38
	60	0.23	0.39	0.050	1590	0.310	70	Inlet	41
								Outlet	41
ZFH300/4-1AC	50	0.41	0.63	0.095	1230	0.532	60	Inlet	43
								Outlet	42
	60	0.41	0.60	0.110	1360	0.593	55	Inlet	46
								Outlet	46

SINGLE Phase - 200V to 277V / 50Hz or 60Hz

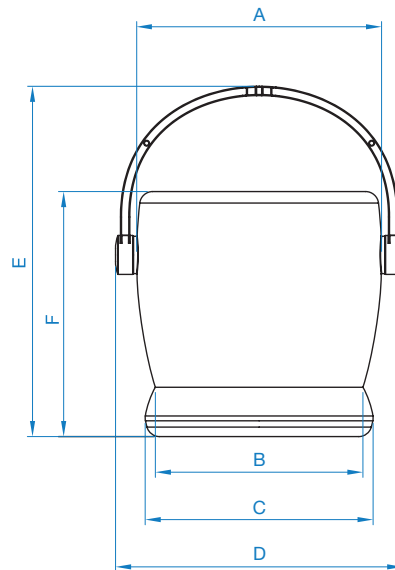
Product Code	Motor Electrical Data		r/min	Max Volume m <sup>3</sup> /s	Max Operating Temp °C	dBA @3m	
	FLC Amos	Input kW				Inlet	Outlet
ZFH250/4-1EC	0.77	0.113	2568	0.423	60	Inlet	53
						Outlet	53
ZFH300/4-1EC	1.01	0.150	1640	0.656	60	Inlet	51
						Outlet	49

Exempt from ErP of the European Parliament. Fan data in accordance with ErP 327/2011 of the European Parliament. Measurement category used to determine energy efficiency: A. The overall A-weighted sound pressure level is at a distance of 3m with spherical free-field propagation. It is expressed in dB re-20µPa and is presented for comparative purposes only. Data provided at standard air density of 1.2 kg/m<sup>3</sup>. Peak Amps @ 400V / 3Ph / 50Hz.

Elta has a policy of continuous product development and improvement and therefore reserves the right to supply products which may differ from those illustrated and described in this publication. Confirmation of dimensions and data will be supplied on request.

# ZOO FAN ZFH

## Dimensional Data



Product Code	A	B	C	D	E	F	Weight kg
ZFH250	359	300	352	445	545	375	6.8
ZFH300	452	367	421	533	656	460	10.5

Dimensions are in mm.

## Accessories

Product Code	Transformer Controller	Electronic Controller	Wiring Diagram
ZFH250/4-1AC	149-TC12-0-10	149-POT-10	152-177
ZFH300/4-1AC	149-TC12-0-10	149-POT-10	152-177

149-POT-10 required if 149-TC12-0-10 is to be used in manual control.

Product Code	Electronic Controller	Wiring Diagram
ZFH250/4-1EC	149-POT-10	152-00036
ZFH300/4-1EC	149-POT-10	152-00036

# ZOO FAN ZFH

## Selecting a Zoo Fan

The calculations for destratification are worked out using the volume of air within the area, rather than the floor area.

1. Calculate volume in metres by multiplying the length, width and average height:

$$\text{Length} \times \text{Width} \times \text{Average Height} = \text{Volume in m}^3$$

2. Next, determine which fan to use based on ceiling height. ZOO Fans are currently manufactured in two sizes:

### ZFH250

AC: 0.265m<sup>3</sup>/s, EC: 0.423m<sup>3</sup>/s. Applications up to 9m height.

### ZFH300

AC: 0.532m<sup>3</sup>/s, EC: 0.656m<sup>3</sup>/s. Applications up to 20m height.

3. After selecting the fan size you are going to use (ZFH250 or ZFH300), use the following formula:

$$\text{Volume m}^3 \div 3600 \div \text{m}^3/\text{s} = \text{number of fans to install}$$

Volume of the space in m<sup>3</sup> ÷ 3600 (seconds in an hour) ÷ m<sup>3</sup>/s (of the fan selected) = the number of fans that are required to achieve one (1) air turn in one (1) hour.

Every ZOO Fan is variable-speed controllable and can be angled easily, if need be, to direct the flow. This allows for ease of installation and control across a broad range of applications. By simply adjusting the speed of the fan, the two sizes and models shown above can effectively cover ceiling heights from 3m to 20m.

In most cases it is best to use the ZFH250 for ceiling heights up to 9m and the ZFH300 for anything higher than 9m (see 'Other Considerations' for additional information).

## EXAMPLE

1. A big box store with a length of 75m, 50m width and a height of 7m has the following volume:

$$75 \times 50 \times 7 = \text{Volume } 26,250\text{m}^3$$

2. As the ceiling height is less than 9m the ZFH250 AC can be used:

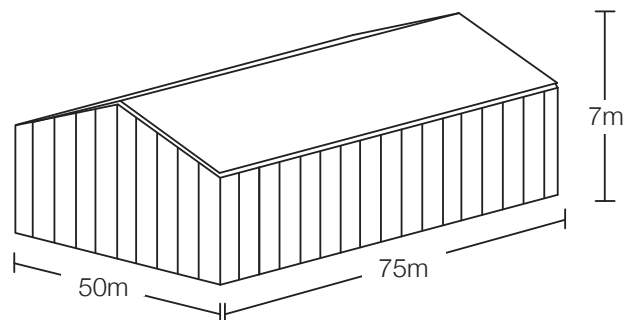
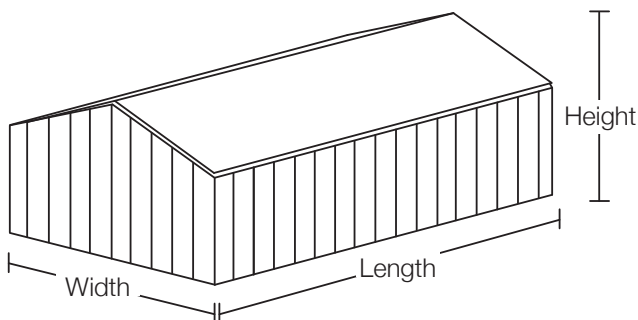
### ZFH250 AC

0.265m<sup>3</sup>/s. Applications up to 9m height.

3. Using the formula and rounding the number up, it shows 28 AC ZFH250 fans would be required:

$$26,250 \div 3600 \div 0.265 = 27.52$$

**Other Considerations:** There are some instances where you may consider the 300mm unit for lower ceiling heights. For example, with a ceiling height of 8m in a warehouse that is not constantly occupied, or where racking system and overhead truck doors are evident, you would select the 300mm or EC model to have the option of delivering a higher volume of air at floor level. You would also select the 300mm model for applications where you want to use the fans for spot cooling. In a more constantly occupied space where your ceiling height is 9m or less, and higher air speeds might cause discomfort for the occupants, it's preferable to use the ZFH200. Examples would be a grocery store or a car showroom. This would create less draught and still destratify the space effectively.





# WHAT'S YOUR ZOO? ZONE OF OCCUPANCY

ZOO Fans gently mix the air, eliminating hot and cold spots. The temperature at floor level is much more comfortable and the HVAC systems run less.

## Where to consider ZOO Fans

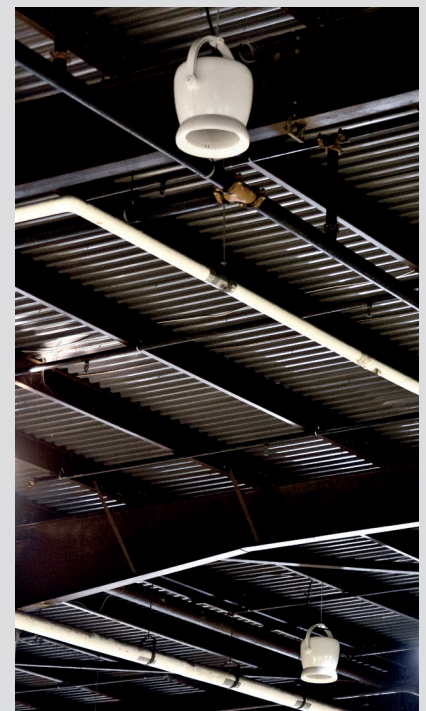
- > Retail
- > Warehouse
- > Distribution Centres
- > Hangars
- > Automotive Sales & Service
- > Fleet Maintenance
- > Gymnasiums
- > Athletic Facilities
- > Manufacturing
- > Offices
- > Theatres
- > Auditoriums
- > Medical Centres
- > Hospitals
- > Airports & Transportation Hubs

## Easy to control

- > Operate individually or together in Zones
- > BMS Integration Available
- > Variable speed control allows fine-tuning of airflow for ceiling heights from 2.5m to 30m or more, ensuring comfort and performance

## Built to last

- > Built with BAT (Best Available Technology) for high efficiency
- > Independently tested
- > Assembled in the United Kingdom



Find out how easy and cost-effective it is to lower the cost of high ceilings.

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\*[www.carbontrust.com/resources/faqs/technology-and-energy-saving/energy-efficient-heating](http://www.carbontrust.com/resources/faqs/technology-and-energy-saving/energy-efficient-heating)

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