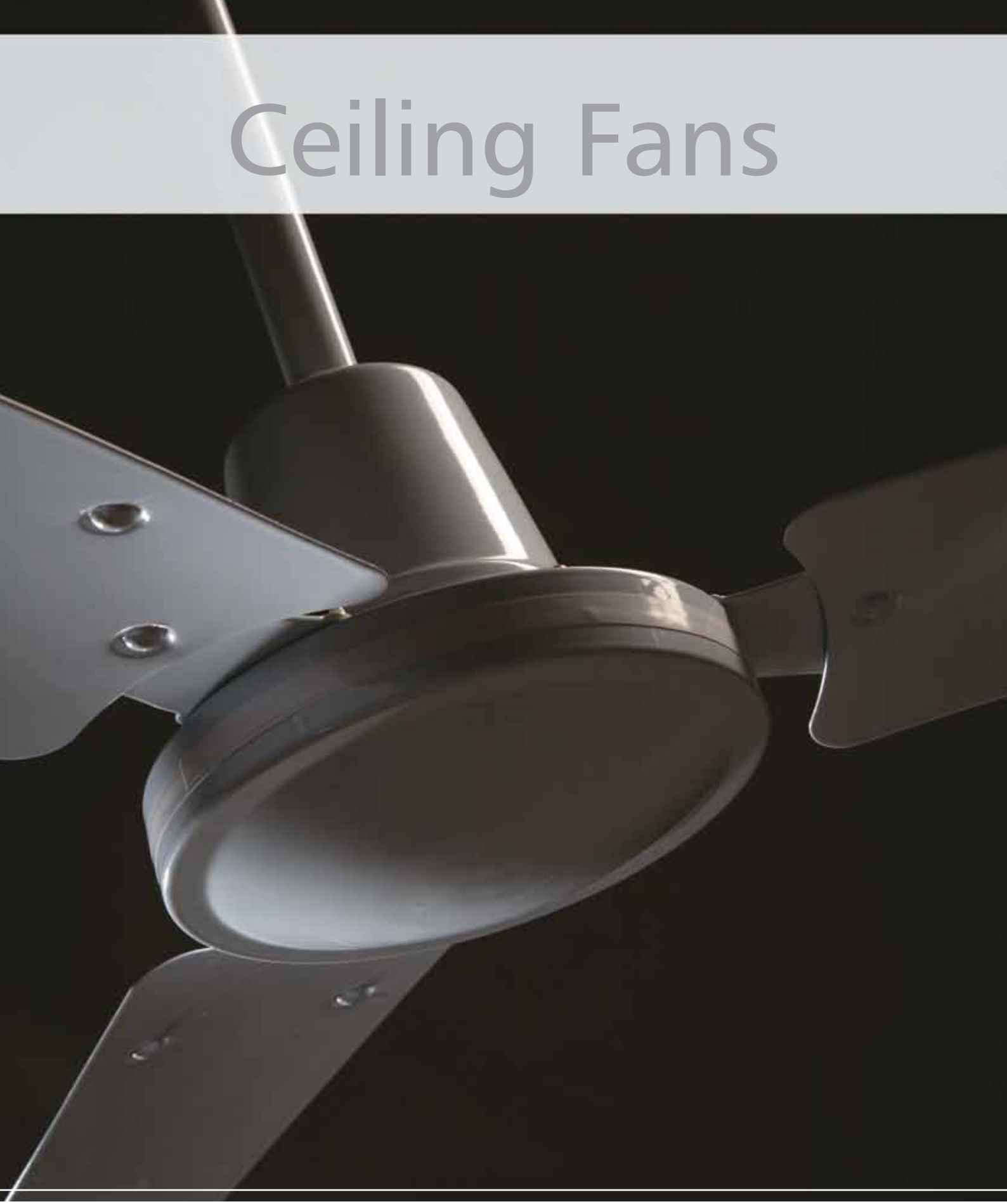
Ceiling Fans



hydor

HCF Ceiling Fans

Hydor HCF Ceiling fans have been developed around our customers needs to increase the level of temperature efficiency throughout the year within their buildings, of particular importance in these times of escalating fuel prices.

From farmers to factory managers, Hydor principally operates in agricultural and industrial markets, understanding the importance of providing positive air movement conditions for animals and human welfare.

The HCF range of ceiling sweep fans, available in three sizes, 36", 48" and 56" are specifically designed to eliminate heat stratification in winter by forcing warm or heated air down, equally, HCF units are also designed to provide positive air movement for continuous cooling in summer.

The market applications are so diverse, ranging from poultry, for heat de-stratification, dairy for herd cooling, seasonal office cooling, to factories and workshops, kitchens, industrial warehousing and hospitals to name a few.

Applications are one thing, benefits another, so whether it's energy cost savings, heat stress reduction in animals, comfortable staff working conditions, dryer litter in poultry houses, reduced condensation in buildings or thicker coats for your dairy or beef herd, Hydor's ceiling fans and application knowledge can benefit you.

A range of standard controllers are available to meet your requirements or specialist bespoke controls can be produced to your specification to further enhance the benefits available.

Features & Benefits

- Capacitor start and run motor fitted with ball bearings. Class E insulation, suitable for 40°C ambient operating temperature.
- HCF fans are supplied with two down rod lengths as standard.

  The short down rod is 150mm, suitable where the fans are mounted below the ceiling or roof height, for example, beams.
  The long down rod is 400mm in length.
- An additional safety feature of the ceiling fan is a steel cable which passes through the drop rod, connecting the motor body to the J-hook mounting bracket.
- Ease of installation which can be carried out by a qualified electrician.
- Low capital investment yields returns sooner.
- Fully Reversible - Where minimal air disturbance is required, HCF fans can be fully reversed at the flick of a switch. With this setting, the air is forced upwards to the ceiling area, then down the walls to the desired area.
- Flexible for either summer cooling and comfort or heat conservation.
- A full 12 months warranty on all HCF Models.

Controllers

Hydor HCF Ceiling Fans are controllable by a variety of control types to meet various environment requirements. All controllers are infinitely variable with solid state components, insulated spindle, white cover plate and suitable for surface mounting only.

- The HFC range of fan controllers offer manual speed control to match changing environmental conditions. The controllers are available in a variety of current ratings to operate differing numbers of fans.
- The HCFC1.7 reversing ceiling fan controller provides an extra dimension to typical installations as the fan speed and direction can be manually selected to match changing environmental conditions, particularly relevant to installations where the mounting height is lower.
  Each HCFC1.7 controller has been specifically designed to provide control of one to five HCF fans.
- The HCFDC automatic ceiling fan controller further enhances the control by automatically regulating the air movement by measuring the temperature difference between roof and floor levels. As the difference widens, fan speed is increased, and as the difference is reduced the fan speed is lowered. The HCFDC is supplied with two temperature sensors and is capable of controlling up to fifteen fans.

All controllers are infinitely variable with solid state components, insulated spindle, white cover plate and suitable for surface mounting only.

- Hydor 5-step transformers are available for HCF fans where the need for completely silent running is required. They are available in various ratings to control up to fifteen fans. Encased in a robust plastic enclosure these units are ideal for industrial applications.

Applications

Winter heat conservation

It's a simple concept - Common to us all – Heat Rises, and because it rises, it consistently builds up in the ceiling before it dissipates through the roof into the atmosphere, while floor temperatures remain relatively cool in the building.

Figure 1. illustrates a typical industrial warehousing or factory application, where a heating system is installed. As you can see from the drawing, before ceiling fans are installed, supplementary heat predictably rises to the ceiling, reflected by the temperature at different heights within the building, whilst reducing workers comfort by being cooler despite the additional heating.

Figure 2. shows that following the installation of ceiling fans, a more equal temperature distribution is achieved throughout the building by the positive air movement from the fans. This de-stratification of temperature layers not only improves the workers comfort and level of efficiency, it also reduces heating costs.

De-stratification of heat in factory during winter

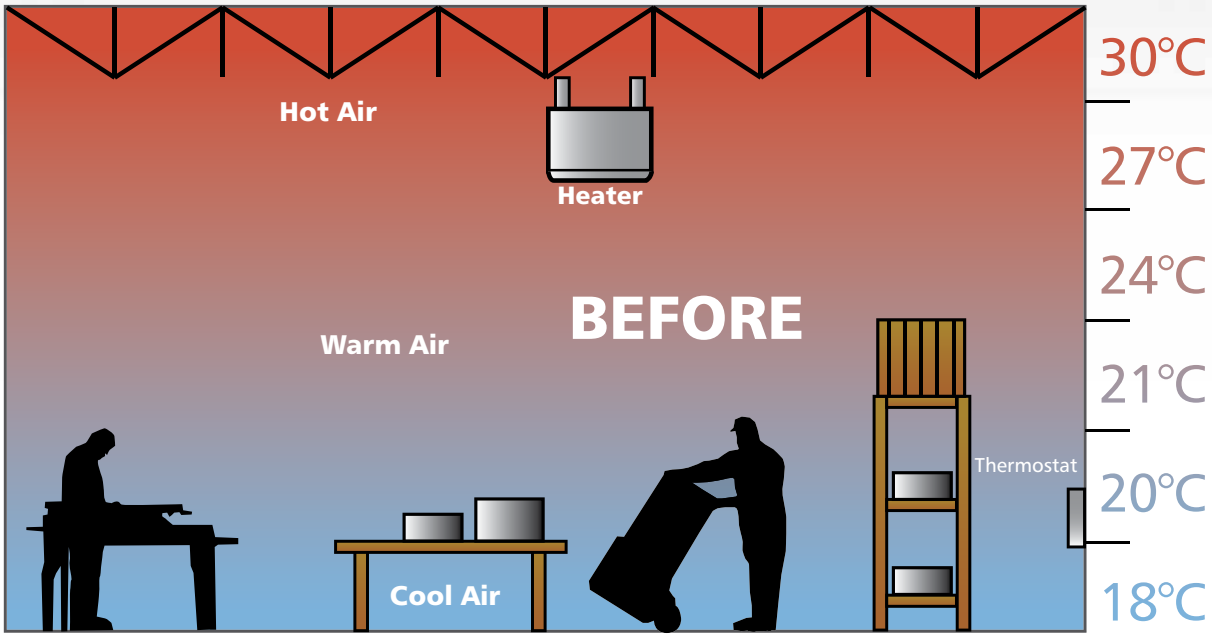


Figure 1.

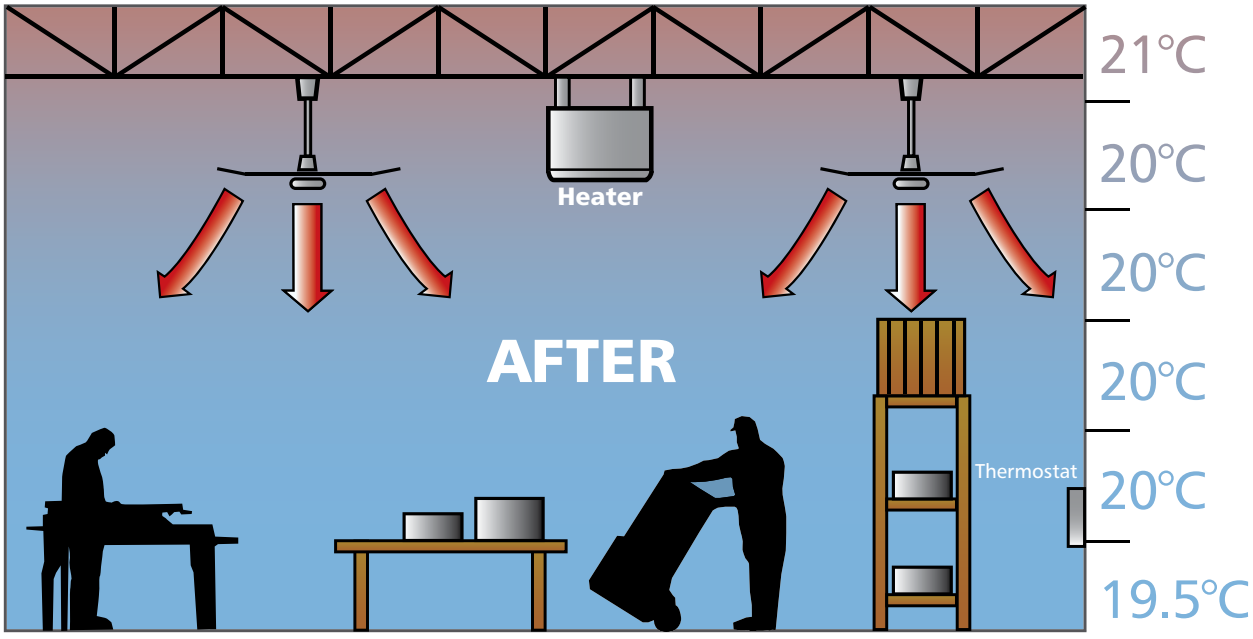


Figure 2.

Summer livestock cooling

Figure 3. illustrates a typical dairy herd enclosure in the height of the summer months with no mechanical ventilation.

As you can see, before ceiling fans are installed, the warm, muggy air sits in the building, which creates uncomfortable conditions for the cattle, in particular, the warmer temperature can develop heat stress for the animals, attracting flies as well, whilst creating an uncomfortable working environment for dairy workers.

As illustrated by Figure 4. by installing ceiling fans within the dairy enclosure, this provides positive air movement, equalising the temperature levels within the building during the summer for cattle and workers, with better cooling to minimise heat stress and discourage flies with the constant air circulation.

Cooling of livestock building in summer

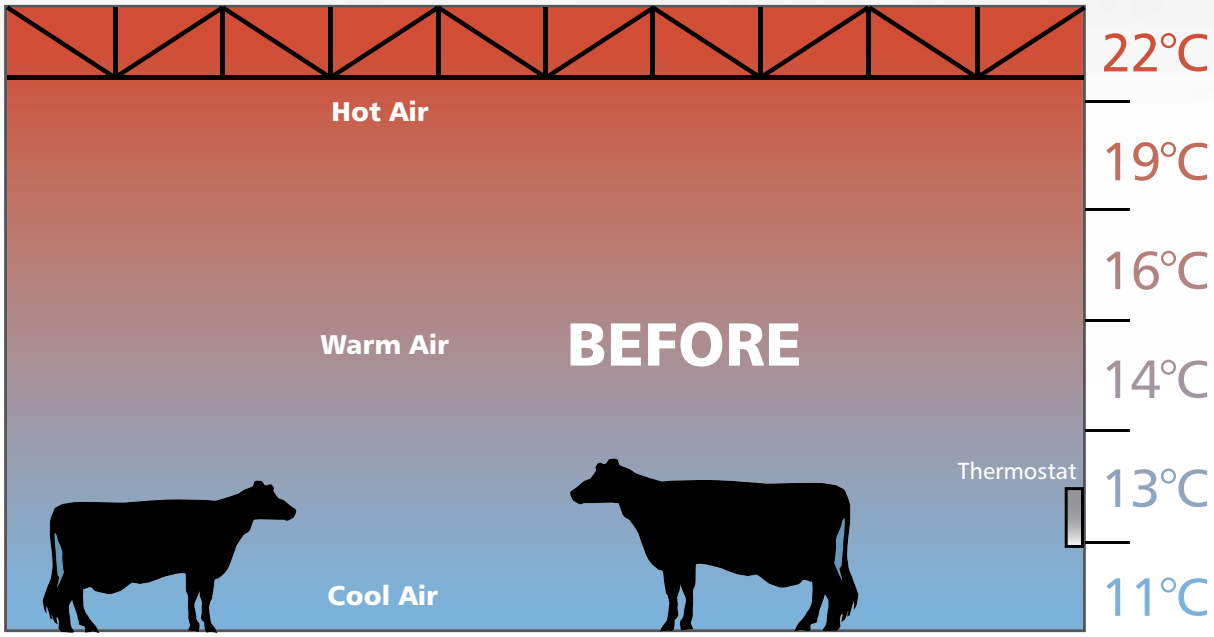


Figure 3.

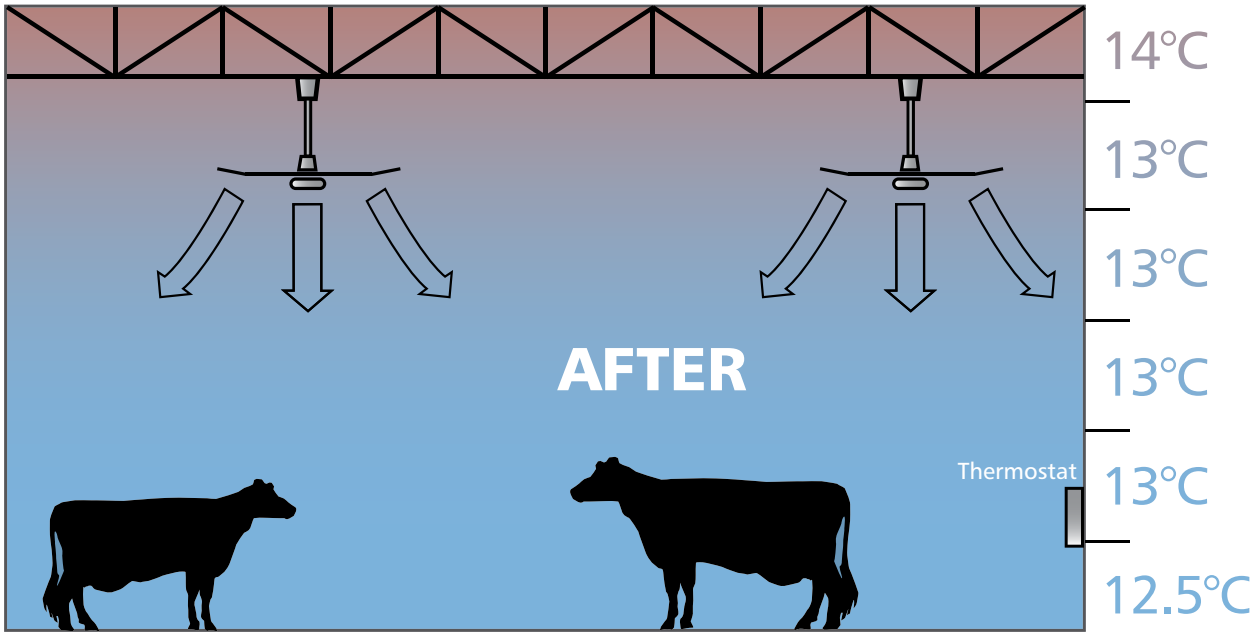


Figure 4.

General Fan Selection

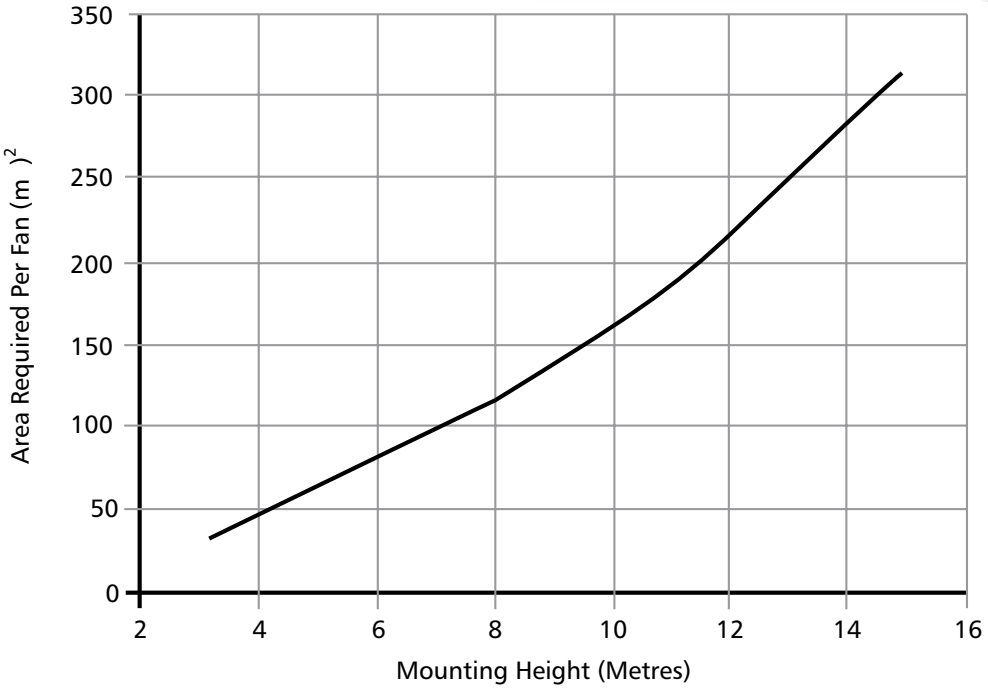
Whether it's a heating or cooling requirement, it is important to determine the precise number of fans required. In order to do this;

1) Decide upon the mounting height of the ceiling fans
(There must be a minimum distance of 2.3m between the floor and the lowest point of the ceiling fan).

2) Determine the floor area in Square metres.

3) Graph 1.0 below should be used to ascertain the area required by each HCF Fan at the mounting height.

4) By dividing the floor area by the area covered by the fan (as determined from Graph 1.0) this allows you to round up to the next whole number, thereby determining the number of fans required.



Graph 1.0

Ceiling Fan Selection for Heat Conservation

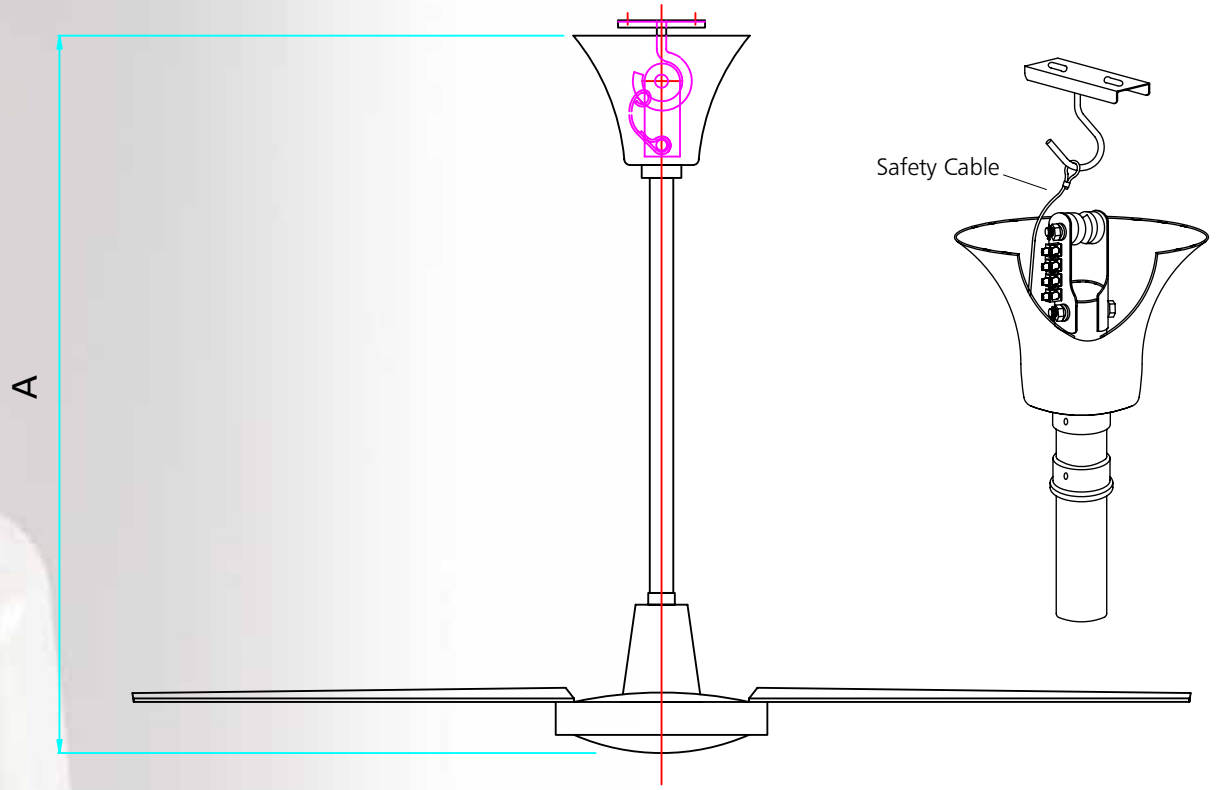
Fan selection depends upon the height and area of the building. As a guideline, Hydor provides useful details below to calculate the number and types of ceiling fans required.

(A) Select one HCF900 (36") per 33m² / 355ft²
Select one HCF1200 (48") per 90m² / 968ft²
Select one HCF1400 (56") per 145m² / 1560ft²

(B) Select HCF900 (36") units for a maximum of 3m / 10ft mounting height
Select HCF1200 (48") units for a maximum of 6m / 20ft mounting height
Select HCF1400 (56") units for a maximum of 9m / 30ft mounting height

Please note the 'mounting height` refers to the distance between the blades and the floor. There must be a minimum distance of 2.3m between the floor and the lowest point of the fan.

HCF Dimensional Data



Product Model	Fan Diameter	A	Weight (kg)
HCF900	900mm	610 / 360	4.0
HCF1200	1200mm	610 / 360	4.5
HCF1400	1400mm	610 / 360	5.0

N.B. All Dimensions are expressed in millimetres
Dimension A is determined by down rod length

HCF Performance & Electrical Data

	HCF900	HCF1200	HCF1400
BEARING	Ball		
MOTOR	Totally Enclosed Capacitor		
VOLTAGE	230V		
FREQUENCY	50 Hertz		
WATTS FULL SPEED	43	55	67
r/min MAX	330	315	290
FLC AMPS	0.21	0.25	0.30
AIR DELIVERY MAX	2.25m³/s	3.5m³/s	3.92m³/s

HCF Controllers

Manual Ceiling Fan Controllers

Manual ceiling fan controllers will set and adjust the speed of the fans by turning a speed control knob. There are two types available, the HFC model allowing single direction speed control and the HCFC model that offers forward and reverse speed control. These controllers are particularly suited to applications where the mounting height is low.

HFC

A manual controller with an on/off switch and a speed control knob for single direction, variable speed control. Available in 3 current ratings, which will operate varying numbers of fans dependant on the application.

Specification HFC

Dimensions:	110mm (w) x 110mm (h) x 80mm (d)
Voltage:	230V

Model	HCF900	HCF1200	HCF1400
1.7A	up to 6 fans	up to 5 fans	up to 4 fans
3.0A	up to 12 fans	up to 10 fans	up to 8 fans
6.0A	up to 24 fans	up to 20 fans	up to 17 fans

HCFC1.7

A manual reversing controller with a fwd/off/reverse switch and a speed control knob for variable speed control. Where minimal air disturbance is required, fans can be fully reversed at the flick of a switch where this controller is installed. With this setting, the air is forced upwards to the ceiling area, then down the walls to the desired area.

Specification HCFC

Dimensions:	110mm (w) x 110mm (h) x 80mm (d)
Voltage:	230V

Model	HCF900	HCF1200	HCF1400
1.7A	up to 6 fans	up to 5 fans	up to 4 fans

HCFDC Automatic Ceiling Fan Controller

The Hydor Automatic Ceiling Fan Controller regulates the speed of the fan and the volume of air it moves automatically. Probes measure the air temperature at roof and floor levels, allowing the controller to adjust the fan speed as appropriate to combat the temperature differential.
Essentially as the temperature difference becomes greater the fan speed is increased. As the temperature difference lowers, the fan speed is decreased. This automatic function ensures heat is recovered from the roof space when required, thereby reducing the run time of heaters, and automatic reduction of fan speed reduces unnecessary energy usage.

Features

- On/Off switch
- **Winter/Summer reversing switch** - Winter mode re-circulates heated air in the roof space back down to the floor where needed. Summer mode reverses the fan, to aid air movement in the building in order to avoid stale air and enable a cooling effect.
- **Automatic/Manual Switch -** Automatic mode functions with the temperature sensor probes, to automatically control the fan speed as the temperature difference rises and falls. Manual mode allows the fans to be speed controlled manually.
- **Fan Speed Control Knob** - In manual mode, will vary the speed of the fans. In automatic mode adjusts the sensitivity of the fan speed to the temperature difference between high and low level.

Specification HCFDC

Dimensions:	160mm (w) x 120mm (h) x 80mm (d)
Voltage:	230V

Model	HCF900	HCF1200	HCF1400
5.0A	up to 20 fans	up to 17 fans	up to 14 fans

High Probe:	10m cable length
Low Probe:	1m cable length

TC5 Step Transformer Controller

The Hydor transformer controller eliminates any magnetic hum to provide completely silent running. The units include manual on/off switch and five position selector switch for selection of pre-set fan operating speeds. The units are IP40 rated and the robust plastic enclosure make them ideal for industrial applications.

Specification TC5

Dimensions:	220mm (w) x 220mm (h) x 150mm (d)
Voltage:	230V

Model	HCF900	HCF1200	HCF1400
2.0A	up to 8 fans	up to 6 fans	up to 5 fans
4.0A	up to 16 fans	up to 13 fans	up to 11 fans

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