

Planning instructions – destratification in tennis halls



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Planning instructions – destratification in tennis halls

Operating principle

Our ceiling fans bring warm air downwards to the floor, ensuring even temperature distribution throughout the hall. Air stratification with temperature differences of 10°C or more is almost completely eliminated, reducing heating costs by up to 30%.

In addition, heat loss through the ceiling (transmission losses) is significantly reduced. The lower temperature difference between the indoor temperature near the ceiling and the outdoor temperature has direct proportional impact to the transmission losses.

For example: Outdoor temperature is 0°C. Reducing the ceiling temperature from 34°C to 22°C lowers heat loss through the ceiling by 35%.

Another advantage of warm air circulation is the fast and even heating of the entire hall. Existing cold zones are immediately supplied with warm air. In halls with intermittent use, preheating times can be significantly reduced, resulting in additional energy savings.

Please note the following guidelines to ensure optimal operation:

Choice of fan type

For warm air recirculation in tennis halls approximately 10 m high, the following two types of ceiling fans are particularly suitable:

1. Open industrial ceiling fan

03.210 - white / 03.211 - black



Advantages:

- extra silent
- lower power consumption

2. Guarded industrial ceiling fans

03.295 – black, with safety guard



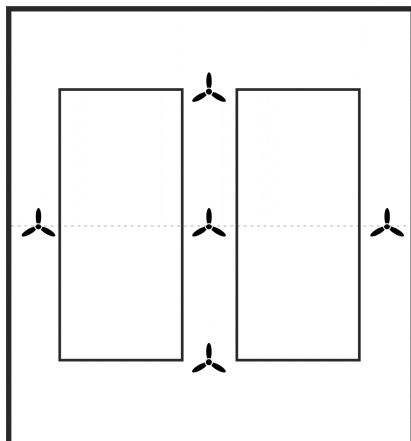
Advantages:

- Visual protection - the blade movements are less recognized
- No light reflections on the blades
- Ball protection
- Less installation effort as fewer devices are required
- High power-reserves e.g. for a fresh breeze in summer and for quick preheating

Planning instructions – destratification in tennis halls

Number of ceiling fans and position

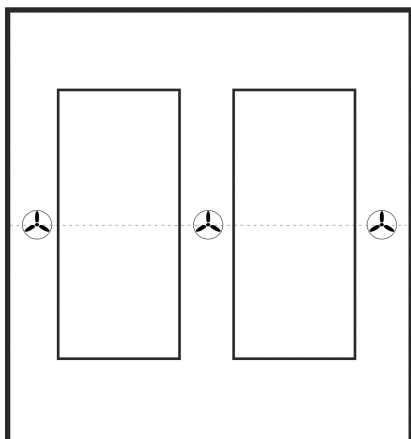
2-court tennis hall with open ceiling fans



Device suggestion:

5 x Ceiling fan 03.210 white or 03.211 black
 2 x Speed controller, stepless 1,5A 03.403
 (two devices for two mounting heights)
 1 x Controller destratification 03.431

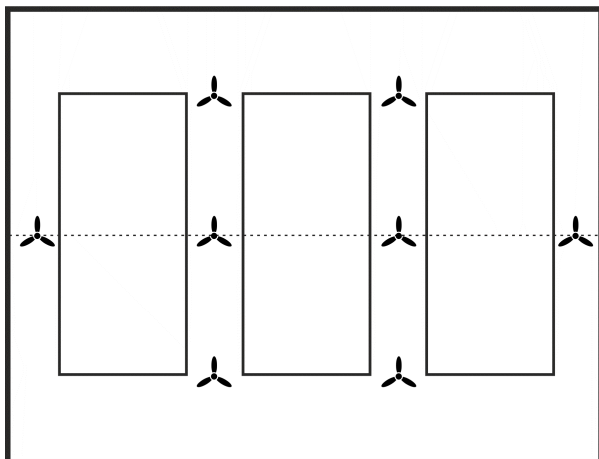
2-court tennis hall with guarded ceiling fans



Device suggestion:

3 x Ceiling fan 03.295
 1 x Speed controller, transformer regulator 5A 03.425
 1 x Controller destratification 03.431

3-court tennis hall with open ceiling fans

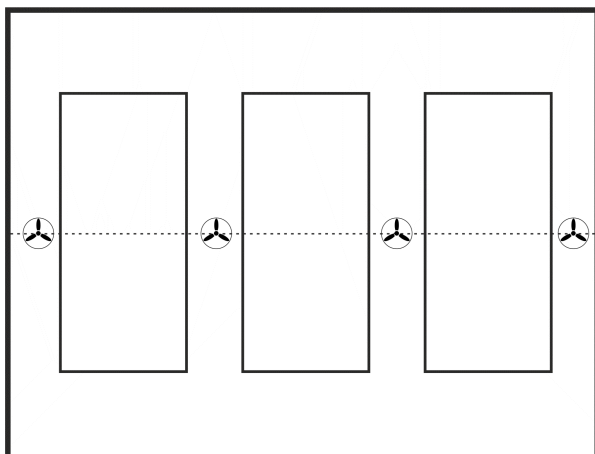


Device suggestion:

8 x Ceiling fan 03.210 white or 03.211 black
 2 x Speed controller, stepless 3A 03.404
 (two devices for two mounting heights)
 1 x Controller destratification 03.431

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3-court tennis hall with guarded ceiling fans



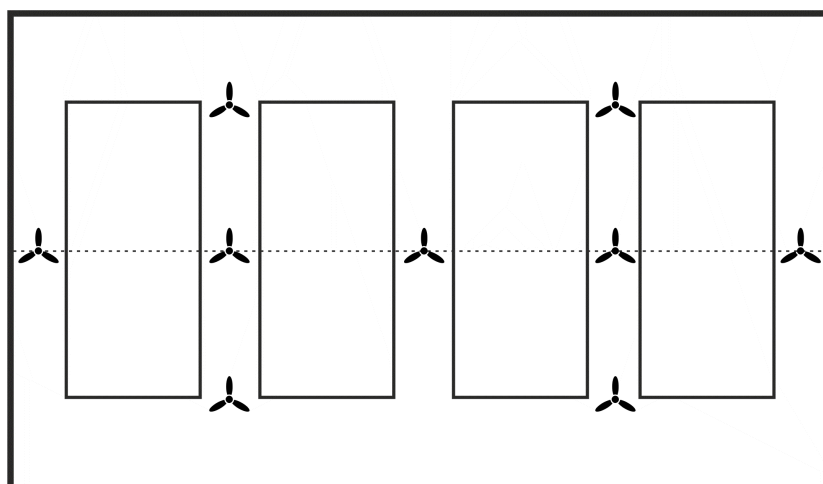
Device suggestion:

4 x Ceiling fan 03.291 or 03.293 (flat packed)
 1 x Speed controller, transformer regulator 5A 03.425
 1 x Controller destratification 03.431

Additionally on site:

1 x Commercial contactor for power extension 03.431

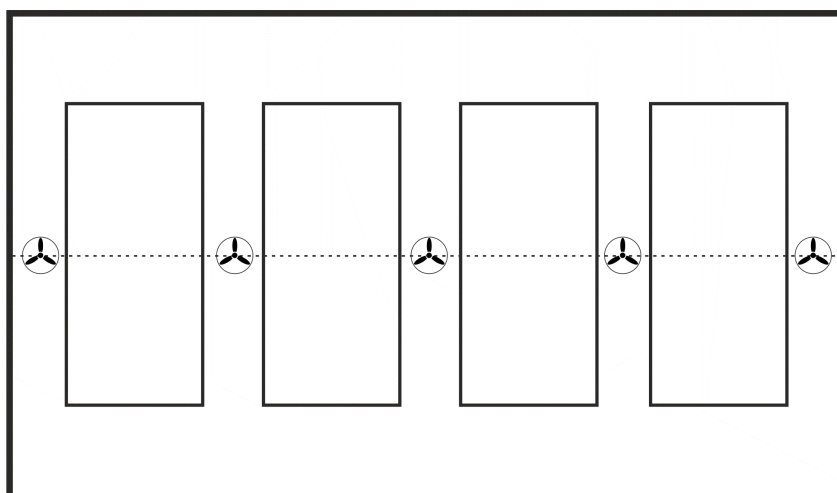
4-court halls with open ceiling fans



Device suggestion:

9 x Ceiling fan 03.210 white or 03.211 black
 2 x Speed controller, stepless 3A 03.404
 (two devices for two mounting heights)
 1 x Controller destratification 03.431

4-court tennis halls with guarded ceiling fans



Device suggestion:

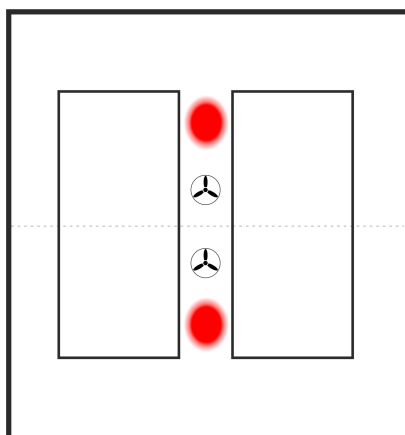
5 x Ceiling fan 03.291 or 03.293 (flat packed)
 2 x Speed controller, transformer regulator 5A 03.425
 1 x Controller destratification 03.431

Additionally on site:

1 x Commercial contactor for power expansion 03.431

Planning instructions – destratification in tennis halls

Air-supported tennis halls



Due to the special shape of air-supported halls, all fans should be installed as close to the roof apex as possible. Alternatively, at least one fan may be mounted at the highest point, while the remaining fans should not be positioned more than 2 m below this level.

It must also be ensured that the airflow is not directed straight onto a playing court. Our fans 03.295 are suspended by three chains, allowing them to be installed at an angle so that the airflow can be directed to a suitable area.

For example, two 03.295 fans can be installed at a slight angle, as shown in the drawing on the left, so that the airflow reaches the red point marked on the floor.

Padel courts

Important:

Padel courts are smaller than tennis courts. Please contact us for individual planning.

Special attention must be paid to the court enclosures.

If the courts are enclosed with glass on all sides, this must be taken into account during the planning stage.

Please contact us for the best solution.

Controller destratification



The controller destratification 03.431 provides automatic control of the fans. The device measures the temperature near the floor and near the ceiling using two separate sensors. Based on the measured temperature difference, the controller switches the fan speed controller and the fans on and off automatically.

If the temperature difference exceeds the set value, the relay switches the ceiling fans on. The switch-off temperature difference can be defined separately. The performance of the fans depends on the degree of air stratification. Therefore, it is recommended to switch on the fans before the temperature difference becomes too high. The factory settings are a temperature difference of 3°C for switching on and 2°C for switching off. Correct positioning of the sensors (near the ceiling and the floor) and practical testing of the settings are important in order to achieve maximum heating cost savings with the lowest possible power consumption.

It is important that the sensors measure the average temperatures near the ceiling and floor. The sensors should not be installed near gates, windows, water pipes, or areas with strong air circulation.

The maximum current rating of 4 A can be increased by using an external contactor.

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Control: Connect the ceiling fans to the air heating system

In this optional case, the ceiling fans operate automatically during the heating phases. Ensuring that the supplied warm air is immediately distributed throughout the hall. As a result, large temperature differences are prevented, and the fans always achieve their maximum airflow range, even in very high halls.

This function can be used either as a simple stand-alone control system or in combination with the controller destratification 03.431.

Regulation of the air flow



Speed controller, stepless

With the following speed controllers, the airflow can be adjusted perfect without causing drafts.

Stepless speed controllers must always be selected as close as possible to the connected load (e.g. 2 A fan load with a 3 A controller). Do not use oversized controller (e.g. 2 A fan load with a 5 A controller).

Number of ceiling fans per speed controller, stepless

	03.210 / 03.211
03.403 Speed controller, stepless, 0.3 – 1.5A	1-4
03.404 Speed controller, stepless, 0.8 – 3.0A	3-8
03.405 Speed controller, stepless, 1.3 – 5.0A	4-12
03.406 Speed controller, stepless, 2.6 – 10A	8-24



Transformer speed controller, 5-steps

Transformer controllers regulate the fans quietly and smoothly.

For this reason, we recommend operating our fans with safety guards in tennis halls using transformer controllers.

Another advantage is that transformer controllers do not require a minimum load. For example, a 5 A transformer controller can also be operated with a fan load of only 1.1 A.

Number of ceiling fans per speed controller

	03.210 / 03.211	03.295
03.423 Speed controller, 5-steps, 2.2A	1- 5	1
03.425 Speed controller, 5-steps, 5.0A	1-10	1-3
03.426 Speed controller, 5-steps, 7.5A	1-21	1-5

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Optimization of the existing hall heating system

After installation of the fans, the energy saving effect is automatically received, without requiring any modifications to the hall heating system. In addition, the following suggestions may provide further optimization potential:

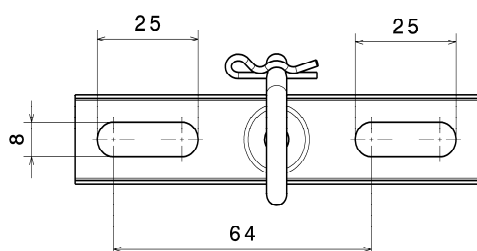
1. Adjust the preheating time of your hall heating system

The fans ensure that warm air reaches the occupied area immediately, allowing it to heat up much faster. Additional energy savings can be achieved by reduce the preheating time of your hall heating system accordingly.

2. Open or remove heating ducts

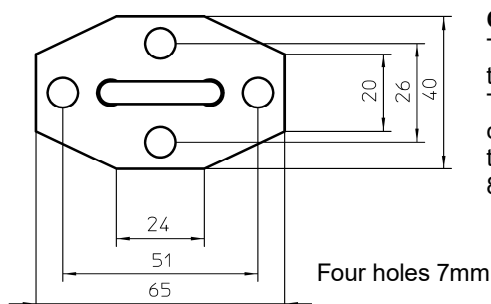
The fans distribute the warm air evenly throughout the hall - from ceiling to floor. As a result, heating ducts that restrict the airflow and absorb unnecessary heat may be opened further or maybe can be removed entirely.

Planning for mounting the devices



Ceiling fans 03.210 – 03.211

One ceiling J-hook with safety pin is included to each fan. To install the additional safety wire with loop end, a suitable ceiling fixing must be provided depending on the ceiling construction.



Ceiling Fan 03.295

Three ceiling hooks and three chains with a length of 0.8 m are included to the fans.

The ceiling hooks should preferably be installed at the ceiling in the corners of a triangle with side lengths of 120 to 150 cm. Alternatively, the three mounting points may be arranged in a straight line with a spacing of 80 to 100 cm.

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Main switch of the ceiling fan area

The entire fan system can be controlled with a dedicated main switch, the main switch of the heating system, and/or a time switch.

Cabling

The drawing shows only the main components for example.



Subject to alterations. Changes may occur without prior notice.
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