

Comfort ventilation and air conditioning

Every building needs fresh air, to provide a healthy and comfortable environment for the people inside. Mostly of the time, the outside air is too warm or too cold to be able to supply it directly to the building. Conditioning the outside air requires a lot of energy. Meltem solves this problem through efficient heat recovery. This significantly reduces the heating and cooling capacity required for a building.

Ventilation units M-WRG-II and M-WRG in combination with cooling and heating ceilings

When installing cooling/heating ceilings, the topic of room ventilation must also be considered in order to ensure the air exchange required for hygienic reasons in accordance with the applicable standards and guidelines.

One advantage of mechanical ventilation is that the cooling or heating output increases due to the pronounced air movement. The reason for this is the heat transfer coefficient, which increases due to the air movement. Mechanical ventilation also offers advantages when heating the ceiling, since the vertical room air temperature gradient decreases and the heating output is more effectively distributed in the room.

In mechanically ventilated buildings, the humidity of the room air remains limited even in summer. With e.g. 26°C room temperature and 50% relative humidity, the dew point temperature is about 15°C. The cold water flow temperature for cooling systems is therefore regulated to setpoints not below 16°C. For cold water flow temperature near the dew point, dew point sensors should be provided for safety.

Conclusion:

Surface cooling and heating systems can be combined very well with our ventilation systems M-WRG-II and M-WRG.

Source: Kühlen und Heizen mit Deckensystemen – Grundlagen und Möglichkeiten, Bundesverband Flächenheizungen und Flächenkühlungen e.V. (BVF)

M-WRG-II and M-WRG ventilation units in combination with room air conditioning units (e.g. split units, fan coils, etc)

With a decentralized air conditioning system e.g. in form of a split device, the refrigerant is compressed outdoors, while the air treatment (air delivery, filtering and temperature control) is carried out in the room to be cooled. With many air conditioning units, only the room air is circulated and cooled there is no fresh air supply.

The fresh air supply takes over the comfort ventilation with heat recovery. With high outside air temperature, high outside air humidity and cool room temperature condensate can form in the ventilation units.

For the M-WRG-II and the M-WRG-series, the room temperature should not be colder than 8K compared to the outside temperature.

We generally recommend the use of the M-WRG-II E-ventilation unit with enthalpy heat exchanger for this constellation. This offers the advantage of extracting both sensible and latent heat from the supply air. As a result, the air is not only pre-cooled but also dehumidified. This brings additional interior comfort. The room air conditioner does less work, so you benefit from savings in electricity consumption. This also reduces the investment costs for the air condition units, since the power requirements of the air condition unit is minimized due to the high heat recovery.

Conclusion:

Air conditioning units can be combined very well with our ventilation units M-WRG-II E (with enthalpy heat exchanger). The M-WRG-II P series and the M-WRG series can be easily combined, taking into account the temperature difference of 8K

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