How to select a dehumidifier

A dehumidifier is used to reduce the humidity of areas like a living room, ware houses, museums, cold rooms etc.

Dehumidifier
Model TTK100E
30 ltr / 24 hours

Capacity of Dehumidifier

Humidity is the amount of moisture particles suspended in the air. This is also known as relative humidity and is expressed as %RH.

The capacity of a dehumidifier is expressed either in litre / hour or grams / hour or kilogram hour.

The capacity of a dehumidifier in non technical terms means the amount of water to be removed from the atmospheric air.

Condensation dehumidifier

A condensation dehumidifier converts the moisture into water and drains out the water. Hence capacity of condensation type models can be expressed in litre per hour. If a model has a capacity of 20 litres per hour, it means that it is capable of converting moisture into water at a rate of 20 litre per hour. A higher capacity of 30 litre per hour means that moisture removal is possible at a higher capacity of 30 litres per hour.

Condensation type
Industrial dehumidifier

Desiccant dehumidifier

For a desiccant dehumidifier, conversion into water does not happen and hence cannot be expressed in litre per hour. for these models, the capacity is expressed in gram per hour or kilogram per hour.

For these models, humidity is absorbed by special material known as adsorbants.

Calculation of capacity of dehumidifier

The formula for calculation of the required capacity is explained below:

(current humidity in g/m³ - required humidity in g/m³) x room size in m³ x air change rate = Required capacity of the dehumidifier in g/h

Current humidity : You may record the current humidity using a humidity data logger and find out the current humidity. Please find out the humidity the maximum humidity over a period of time including different climatic conditions.

Small size Industrial dehumidifer

Required humidity : What is the humidity that you would want to achieve after installation of the dehumidifier?

Air change rate: This is based on additional air flow inlet by a HVAC unit

Example: A 2000 m³ warehouse has an air-conditioning system inserting 4000 m³/h of fresh air.

This means the air change rate is 2 (4000/2000).

You should not go below 1 for this calculation, even if there is no additional airflow.

Example of Calculation of capacity of dehumidifier

We assume that we have a warehouse of 2000 m³. The current humidity is 70% and we have to reduce it to 50%. The normal temperature inside the warehouse is 30°C. We need to calculate the required capacity of the dehumidifier.

The airflow rate of the HVAC system is is 4000 m³/h.

First of all convert the humidity to g/m³

70% = 138.03 g/m³ at 30°C

50% = 57.922 g/m³ at 30°C

Hence the calculation will be as below:

(138.03-57.922) x 2000 x 2 = 320 kg per hour

This means that you need a total de-humidification capacity of 320 kg per hour. If you are looking at a dehumidifier of 50 kg per hour capacity, this means that 7 numbers of these models will have to be used.

If you need help on calculation of your dehumidifier please contact us

Vacker supplies dehumidifiers in Dubai, Abudhabi, Qatar, Oman, Bahrain, Kingdom of Saudi Arabia and Kuwait