Power consumption

Why does indoor air dehumidification require too much electricity?

The dehumidification of air is a complex subject, so a number of reasons are conceivable in principle.

Check the following when looking for the cause:

- Is the room to be dehumidified sealed off so that it is air-tight to the external atmosphere? If moist external air is constantly allowed in (e.g. through an open window), operating times are increased **drastically**.
- Is the unit configured correctly, e.g. to operation with an external sensor and not to continuous operation? Is the switching function correct?
- Note: If the cable is incorrectly connected on the sensor's changeover contact, the dehumidifier can run in continuous operation, even though the sensor has not been activated.
- Is the hygrostat or the dew point sensor set correctly and, most importantly, located in the right place?
- Note: Operation with a dew point sensor is normally the most effective dehumidification method. The dehumidifier is not activated until the sensor indicates that the condensation point has not been reached. The condensation point sensor (it only makes sense to have one) installed on the pipeline with the lowest temperature (normally the inflow) controls the dehumidifier(s). If there are several dehumidifiers, their switching commands should be managed via a control unit. Two sensors in parallel can never be configured so that switching operations occur synchronously.
- Are the dehumidification capacity and the required circulation capacity adapted to the room volume to be dehumidified, and is the dehumidifier set up in the right place?

In the case of condensation dryers:

- Does the condenser get sufficiently cold when in operation? If it does not, there is either insufficient coolant in the circuit or the unit is faulty. It may operate continuously as a result.
- Type HD 370: Bends or air duct tubes are not absolutely essential with this type. Excellent air circulation is achieved thanks to great compression from the fans.
- When the dehumidifier is operated without pipes/bends, the baffle plates normally supplied with it must be installed. If it is operated without baffle plates, the energy in the circulated air may be greater than the energy which the cooling unit dissipates. As a result, the condenser does not cool down sufficiently and there is no or only very insufficient condensation. Although the unit still works, it does not dehumidify or does not do so properly and this becomes apparent from the increased operating time.

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In the case of adsorption dryers with outdoor air supply:

- These units work well with cold, dry outdoor air. In the case of warm, moist outdoor air, however, moisture from outside may be carried into the building. In this case, the units must be switched off and condensation dryers must be used.

Air dehumidification in waterworks helps to preserve the long-term value of often high-value systems and building structures. Condensation forming on surfaces and in walls can thus be prevented permanently. When dehumidifiers are operated correctly, the benefits significantly outweigh the costs.

You will find more information in the document *Climate management in water technology systems*.

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