

Expert commentary #1

A series of articles from Systemair specialists aimed at providing accurate technical information to the public

Let's get the facts straight regarding rotary heat exchangers in AHUs



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Maintaining optimum indoor air quality (IAQ) is key to ensuring the health of building occupants, which is even more critical in view of the COVID19 pandemic.

In order to achieve good IAQ in the most energy efficient way, rotary heat exchangers are often the preferred heat recovery solution for air handling units (AHUs).

It is important to keep the rotary wheel running in AHUs because:

- It is essential to maintaining the right temperature and widely recommended relative humidity level of 40-60%, which contributes to reduced rate of respiratory infection and energy savings.
- In a properly operated, quality AHU with the right pressure controls, no exhaust air reaches the supply air stream and leakage is neglectable.
- Rotary heat exchangers are among the most energy efficient energy recovery technologies.



**FALSE
RECOMMENDATIONS**

Nevertheless, during the early stages of COVID19, some publications issued problematic recommendations that called for users to turn off the rotary heat exchangers. This has led to some confusion and misleading information circulating in the HVAC market regarding this widely respected and highly efficient technology.

An example of this can be seen in the earlier versions of the REHVA COVID19 Guidance Document released in March 2020, which is still in circulation in some markets and has been adapted by other bodies, citing the main reason as risk of leakage. REHVA has since corrected this mistake in the most recent versions of its document, published in August 2020. We highly encourage stakeholders to check and ensure that they are using the latest version as a reference guide.

In the latest version, REHVA recommends for properly operating rotary heat exchangers to be turned on, which is now in line with the general recommendations by other organisations such as ASHRAE or Eurovent.

Leakage 101

It is important to remember that a certain level of leakage occurs with all kinds of heat recovery systems (plate and rotors) except run-around coils, which allow for a complete separation between the supply and extract airstreams.

Leakage should always be kept at a minimum level, independent from the type of unit or heat exchanger, which is being ensured in well-designed and operated AHUs of trusted manufacturers. Further, it is possible to prevent and minimize the leakage from extract air to supply air (EATR) by keeping doing the following:

<p>Keep track of pressure relations between Extract air and Supply air</p> <p>Adjust so that the pressure on the supply air side is at least 20 Pa higher than the extract air side. With increased pressure difference, the EATR leakage will decrease.</p>	<p>Keep track of the position and setting of the purge sector</p> <p>Follow the supplier instructions regarding the position and size of purge sector. A correct installed purge sector will limit the EATR leakage.</p>	<p>Follow the supplier maintenance instructions</p> <p>Properly fitted and maintained seals ensure that leakage is minimized. A general maintenance overview will limit also other potential leakage points in the AHU.</p>
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Ask us if in doubt

If you are ever in doubt, Systemair Group and Pacific Ventilation experts are always available. For a more comprehensive overview of the topic, please refer to the case study Systemair Group published earlier this year addressing leakages in rotary heat exchangers [here](#).

We have also published the following **core recommendations**.

Contact us at info@pacificventilation.com.

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