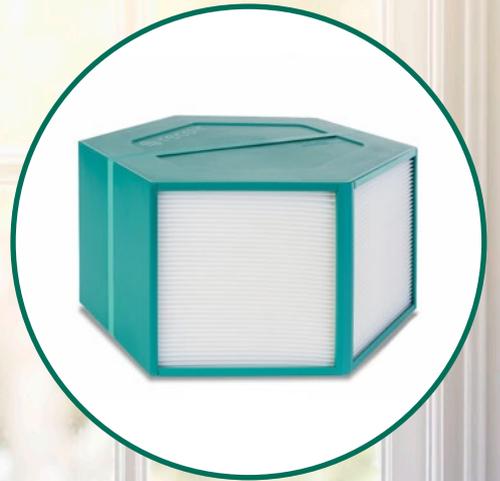




## Heat exchangers Series 160



For optimal moisture control  
and a healthy indoor climate

air|care|recair



# The successful Series 160 from Recair

Recair is the leading developer and producer of heat exchangers for ventilation units worldwide. New insights enable new technological developments. The successful Series 160 has been upgraded with the RCH160 – a hybrid recuperator that ensures maximum comfort.

## **The difference is in the details**

The various Series 160 models differ only in terms of efficiency and pressure drop. Their external dimensions are identical. No modifications inside your ventilation unit are necessary.

The RS160 is the most popular heat exchanger in the world. The RC160 runs extremely quietly. And the RU160 is all about efficiency.

Now there is also the RCH160 that combines everything. Extremely low pressure drop resulting in low noise levels. And thanks to its high sensible efficiency, the supply temperature is always comfortable. Moisture transfer to the incoming or outgoing airflow provides for an even more comfortable indoor climate and extra energy savings.





Optimal  
moisture control,  
budget friendly  
and excellent  
performance

New

# RCH160

## Moisture control for the best comfort

### **Pleasant indoor climate**

The Recair RCH160 is a hybrid recuperator. It has been specially designed for manufacturers of ventilation systems who value both comfort and energy efficiency.

### **Moisture transfer**

In developing the RCH160, Recair conducted research in order to determine the proper amount of moisture transfer in combination with a high sensible efficiency and low pressure drop. Moisture transfer contributes to a pleasant indoor climate.

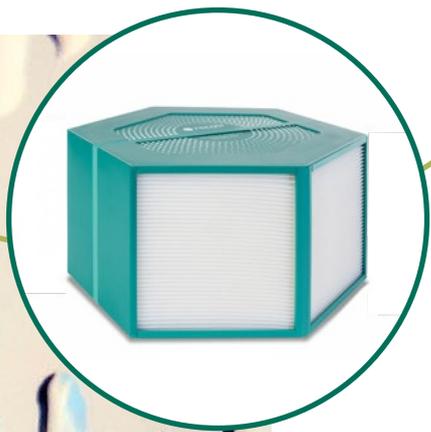
### **Competitive price**

The Recair RCH160 is competitively priced and provides you with an edge over your competitors. With this application, you can make significant progress towards an A+ energy efficiency label certification of your ventilation unit.

*For more information visit [www.recair.com](http://www.recair.com).*

- Low pressure drop
- High sensible heat transfer
- Moisture transfer to incoming or outgoing airflow





## Why a hybrid heat exchanger?

Hybrid heat exchangers equipped with heat recovery have one particular advantage in cold climates: they reduce the drying effect caused by home ventilation. This ultimately results in a much more comfortable living environment. But the Recair hybrid heat exchanger also has advantages in regions that do not suffer from dry and cold air. Allow us to explain.

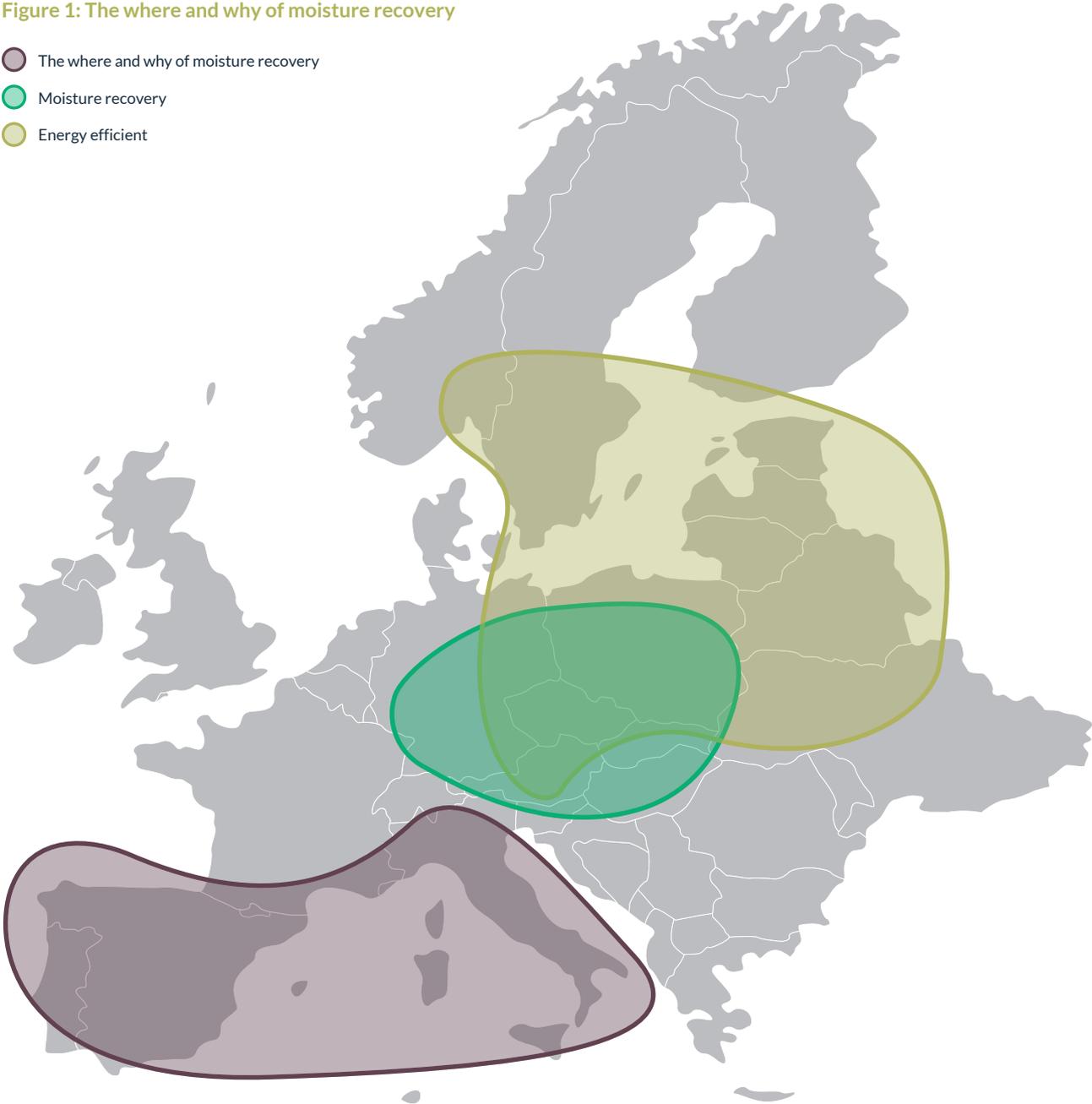
In areas where the outside air is generally both cooler and dryer than the inside air, moisture recovery is less critical. In such climate areas, however, the hybrid exchanger recovers more energy in total than a sensible exchanger. The additional latent energy stored in the moisture present in the air is transferred by means of the membrane. In this sort of climate, the Recair hybrid exchanger is also attractive thanks to its higher total energy transfer.

However, none of these advantages apply in warmer climates. As outside air here is usually more humid than inside air, the drying effect from ventilation is negligible. Furthermore, the higher energy transfer is often insignificant as moisture (hence, energy) is extracted from the fresh intake air. Nevertheless, hybrid heat exchangers are used in this climate area as well.

In these warm climate areas, homes are frequently equipped with air conditioning. For these homes with air conditioning, the hybrid heat exchanger has the advantage that it extracts both sensible and latent energy from the fresh intake air. The air is then not only pre-cooled but is also dehumidified. This actually spares the air conditioner. As a result, the air conditioner does not have to work as hard at cooling. This creates significant savings from lower energy bills.

Figure 1: The where and why of moisture recovery

- The where and why of moisture recovery
- Moisture recovery
- Energy efficient





## RCH160 Performance (heat exchanger stack height of 400 mm)

It is useful to know how efficient heat exchangers actually are. In doing so, a comparison needs to be made between the warmth that it recovers and the energy used by the fans to overcome the air resistance of the exchanger. The issue is the difference between the energy gained versus the energy invested. A heat exchanger that not only recovers sensible energy but, in addition, also transfers moisture, can be illustrated by means of two separate efficiency functions. These are illustrated adjacently. The graphs need to be compared with the graph showing the air resistance caused by the exchanger. Everything is dependent on the amount of air flowing through the exchanger.

The percentages in the efficiency function graphs may not necessarily appear compelling at first sight. The sensible efficiency percentages cannot be simply added to the latent efficiency percentages. The temperature of the fresh intake air does not increase together with a rise in the latent efficiency. However, in further developing heat exchangers, more energy will ultimately be recovered. Also see figure 4 on page 9.

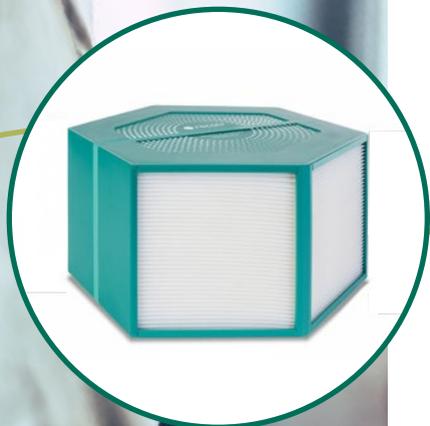


Figure 2: Pressure drop [Pa]

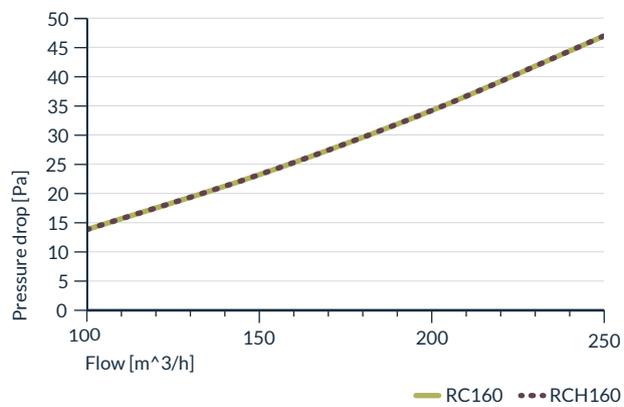


Figure 3: Sensible effectiveness [%]

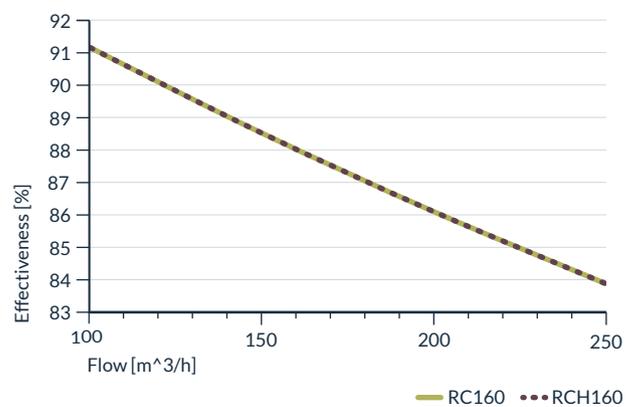


Figure 4: Energy transfer [J/kg]

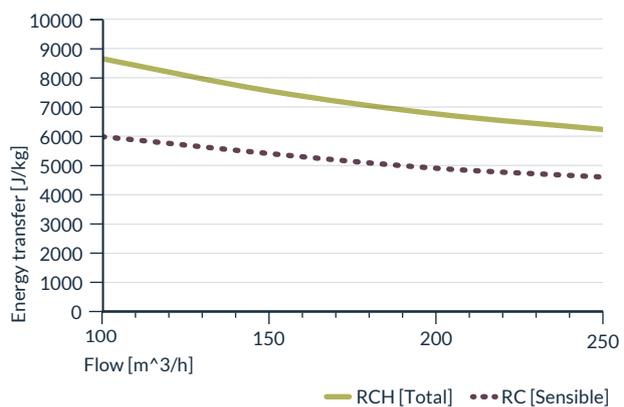
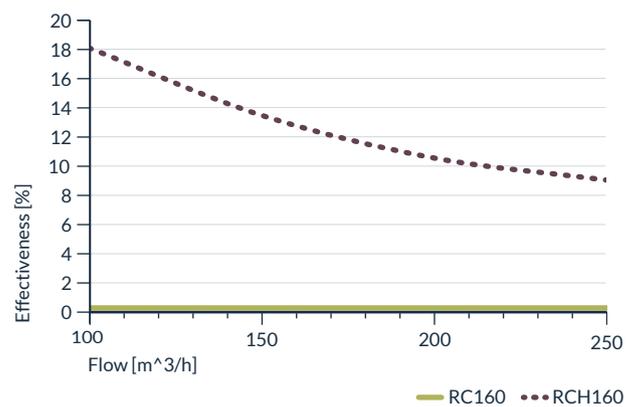


Figure 5: Latent effectiveness [%]



Measurements are done under the following EN 308 conditions:

Ambient conditions: Temperature 14 °C  
 Relative humidity 12 %  
 Absolute humidity 1,2 g/kg air

Room conditions: Temperature 20 °C  
 Relative humidity 58 %  
 Absolute humidity 8,5 g/kg air

# RS160

## Proven heat exchanger concept

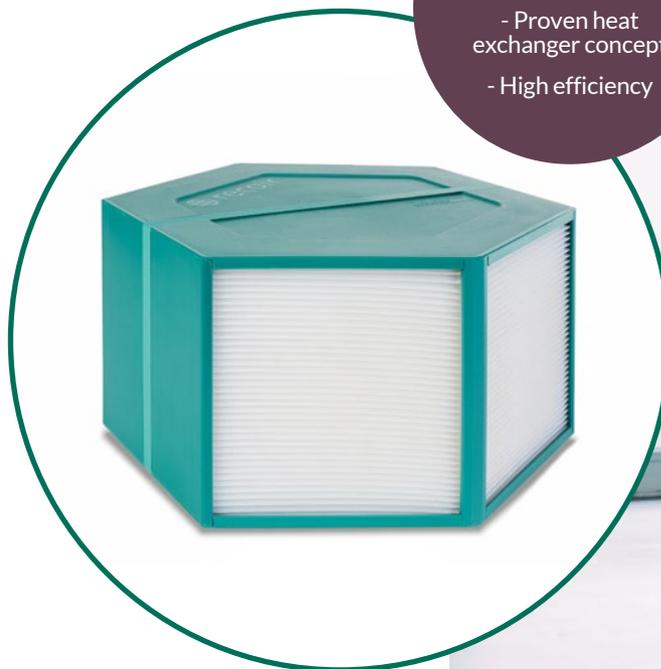
### Most used

The Recair RS160 is the most used heat exchanger in the world. It is the first high-efficiency exchanger (>90%) ever developed.

### Improved

Despite its proven concept, the development of the RS160 has not stood still. Through the years, this recuperator has been improved repeatedly in terms of both major and minor aspects. As a result, the RS160 still meets today's requirements.

*Consult the recuperator calculator to see how Recair can perform for you at [www.recair.com](http://www.recair.com).*



- The most popular heat exchanger in the world
- Proven heat exchanger concept
- High efficiency



Figure 6: Effectiveness RS160

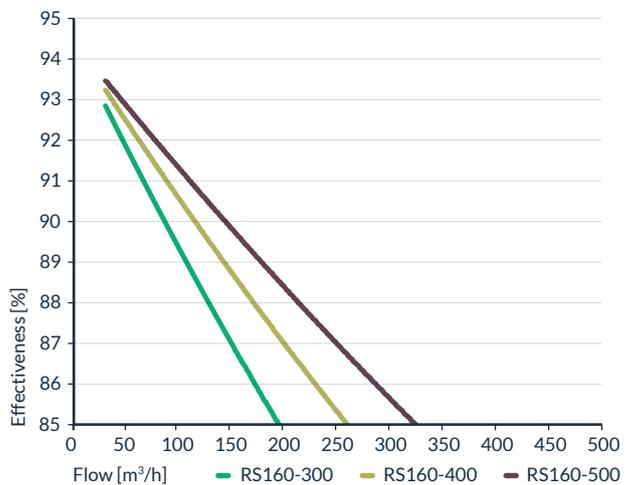
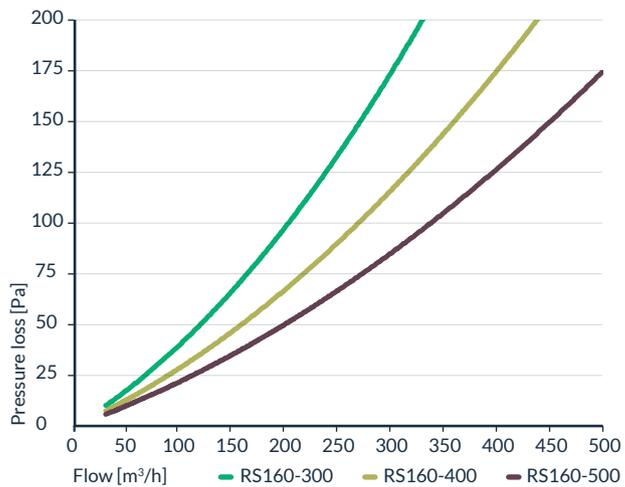


Figure 7: Pressure loss RS160



# RC160

## Extremely low pressure drop and low noise level

### Low power consumption

The Recair RC160 is the recuperator for ventilation units where an improvement in energy efficiency is the greatest challenge. The pressure drop has been brought down to a minimum. This not only saves electricity but also ensures that the ventilation unit produces less noise.

### Efficiency

In terms of efficiency, the RC160 is among the best-performing exchangers on the market. A significant step towards an A+ certification for your ventilation unit.

### Drainage

The greatest challenge during the design phase of the RC160 was achieving an incomparably low pressure drop during condensation. This goal was reached, resulting in energy savings with minimal noise levels in all seasons.

Consult the recuperator calculator to see how Recair can perform for you at [www.recair.com](http://www.recair.com).

Figure 8: Effectiveness RC160

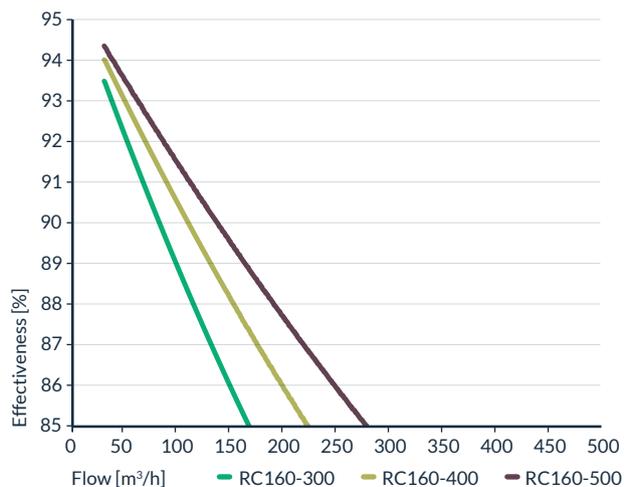
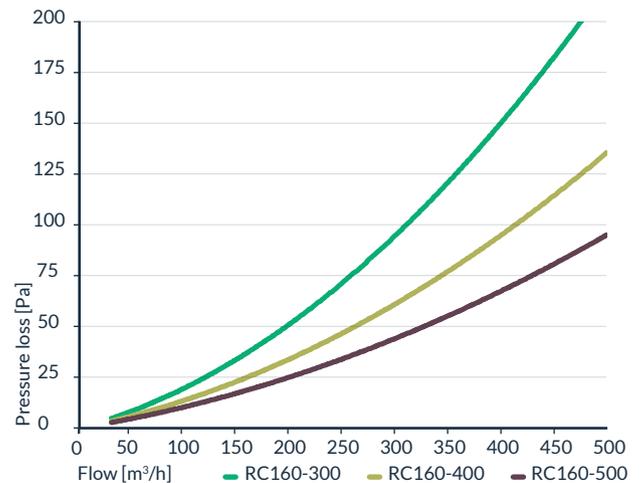


Figure 9: Pressure loss RC160





- Extremely low pressure drop
- High efficiency
- Excellent drainage





# RU160

## Optimal energy savings

### Efficiency

The Recair RU160 is the greatest asset when efficiency of heat recovery is the main priority. This means that the RU160 is an energy saving component that easily helps raise your ventilation unit to an A+ energy label.

### Heat transfer

Energy savings were the starting point in the development of the RU160. This has been achieved through making heat transfer the central focus and maximising efficiency without pressure drop becoming too significant.

Consult the recuperator calculator to see how Recair can perform for you at [www.recair.com](http://www.recair.com).



- Very high efficiency
- Average pressure drop
- Optimal energy savings

Figure 10: Effectiveness RU160

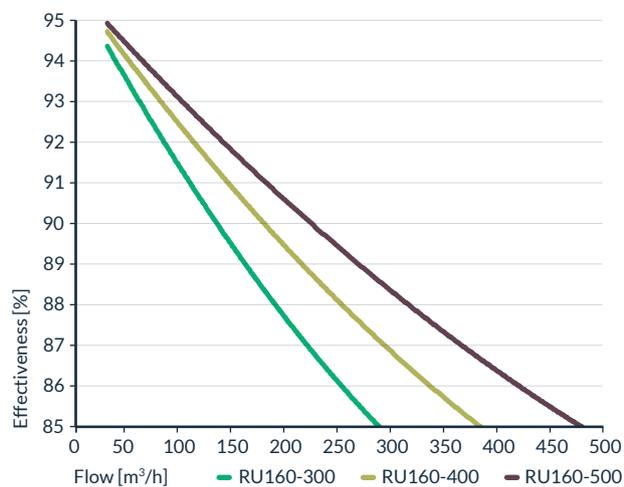
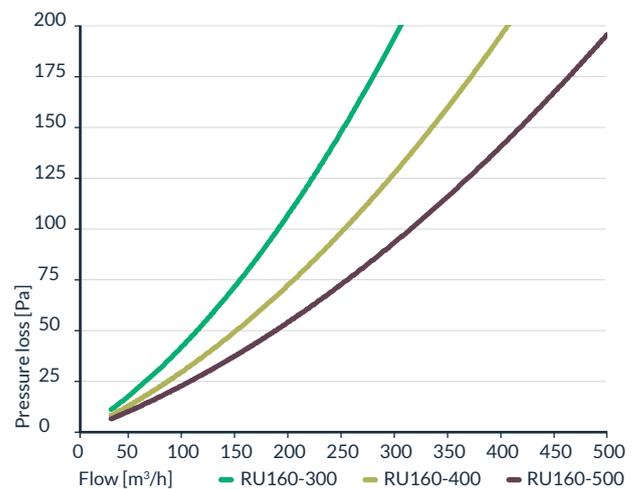


Figure 11: Pressure loss RU160





## Guidelines for storage, assembly and use

Recair recuperators come with flanges for easy and good sealing of the air inlet and outlet connection. For optimum drainage of condensed moisture, the exchange channels should be positioned horizontally or vertically, and the cooling airflow direction downwards.

If you choose the RC160, we advise you to put the air filter right in front of the air inlet surfaces of the heat exchanger. This is connected to good distribution of air over the exchange surface of the exchanger. No air filters are then required on the exit side of the exchanger.

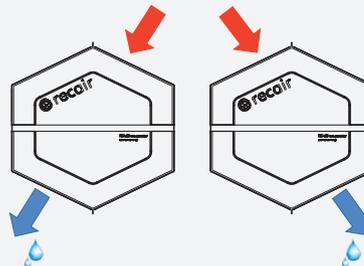
1. Avoid direct contact with UV light.
2. Recair exchangers are designed for the buildings in which we live and work. So avoid contact with chemicals.
3. Operating temperature s: Recair exchangers may be exposed to temperatures between  $-20\text{ }^{\circ}\text{C}$  and  $+50\text{ }^{\circ}\text{C}$
4. The heat exchanger may only be removed from the apparatus by carefully pulling the plastic strip fitted.
5. Cleaning with liquids or water is not required. Dust can best be removed from air inlet and outlet areas using a normal vacuum cleaner.
6. All Recair heat exchangers are checked before delivery to the customer up to a maximum leakage of 25 litres per minute at a static pressure of 250 Pa. Under certain conditions, this leakage of air may also result in some leakage of condensation. For this reason, it may help to point the air flow losing heat downwards and place a condensation trap under the whole exchanger.
7. The heat exchanger performs best when there is a perfect balance between the two air flows.

## Installation Advice for this recuperator

Recair has manufactured this recuperator with considerable care. If you follow the recommendations below, you will be guaranteed a maximum result. Make sure the recuperator is positioned correctly in your ventilation device:

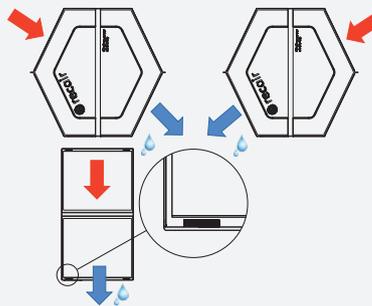
### Possibility I - upright

The best position is upright with the nose profiles at the bottom and at the top. Make sure the **cooling** air flow goes from top to bottom so that the condensation can be properly removed. Left or right makes no difference.



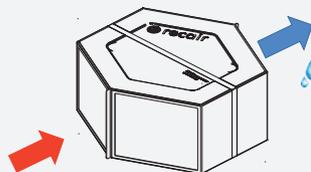
### Possibility II - sideways

You can also fit the recuperator to the side profile. Air entry can be on the left or the right, but must go from top to bottom. In this case your recuperator must be fitted during the manufacturing process with special condensation discharge holes. Recair will arrange this for you.



### Possibility III - horizontal

In the event of horizontal fitting, gravity will not help remove the condensation. Although the recuperator is prepared for this, you should, in this case, make sure that the incoming air comes from **the left**.



# Dimensions and general specifications

## General specifications

### Dimensions:

The Recair Series 160 has both a width and length of 366 mm, and a height that can vary between 100 mm and 500 mm.

### Casing:

ABS

### Slats from model types RS160, RC160 and RU160:

Polystyrene

### RCH160 model slats:

Polyethylene

### Seal:

Durable elastic natural resins

## Lifespan and hygiene

The exchangeable surface of the 160 Series is produced from a material that was developed with dependable hygiene in mind. All models must be cleaned in accordance with the instructions. The slats are placed in a sturdy ABS casing. A natural resin provides for a reliable separation between the airflows under all conditions during the entire lifespan of the exchanger.

## Find your specific heat exchanger model

Do you have questions about our heat exchangers but you do not know what model is installed in your ventilation unit? See the configuration key shown adjacently.



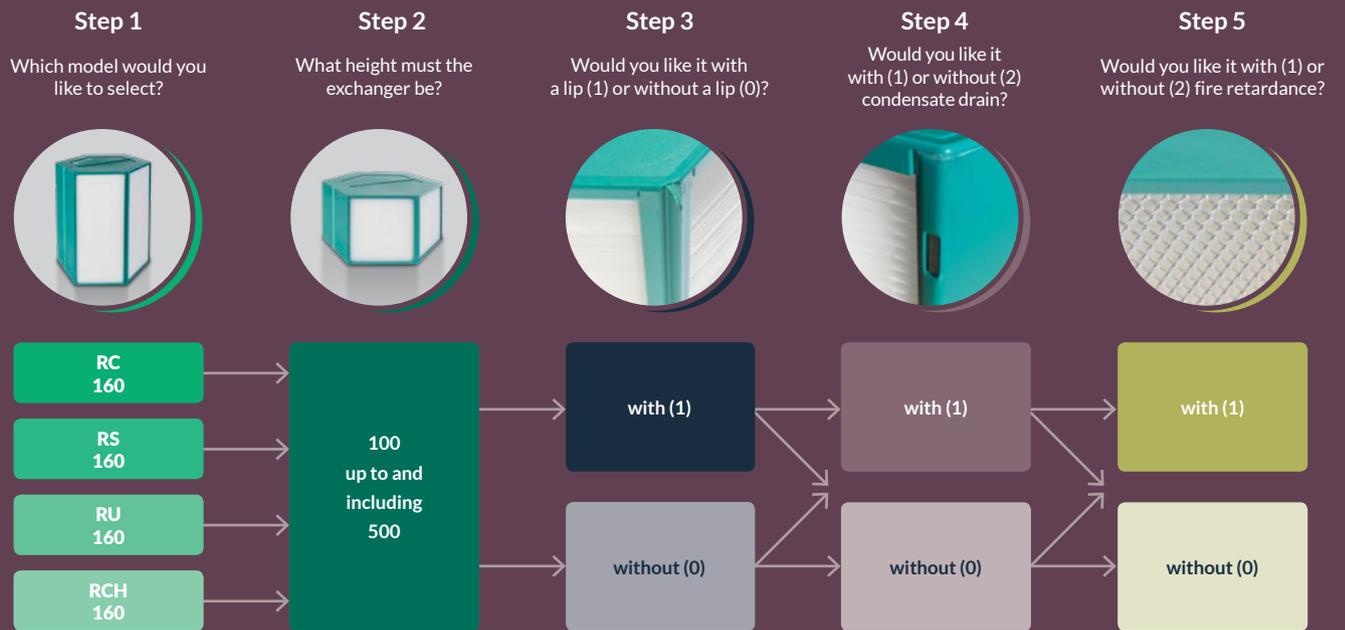
### Allgemeine Raumlufttechnik

- ✓ VDI 6022, Blatt 1 (07/2011)
- ✓ SWKI VA104-01 (04/2006)
- ✓ ONORM H 6021 (09/2003)

Gültigkeitszeitraum  
05/2016 – 05/2021



Figure 14: Product type construction



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