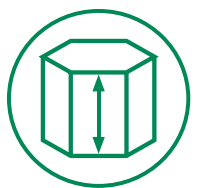




MAIR CORE

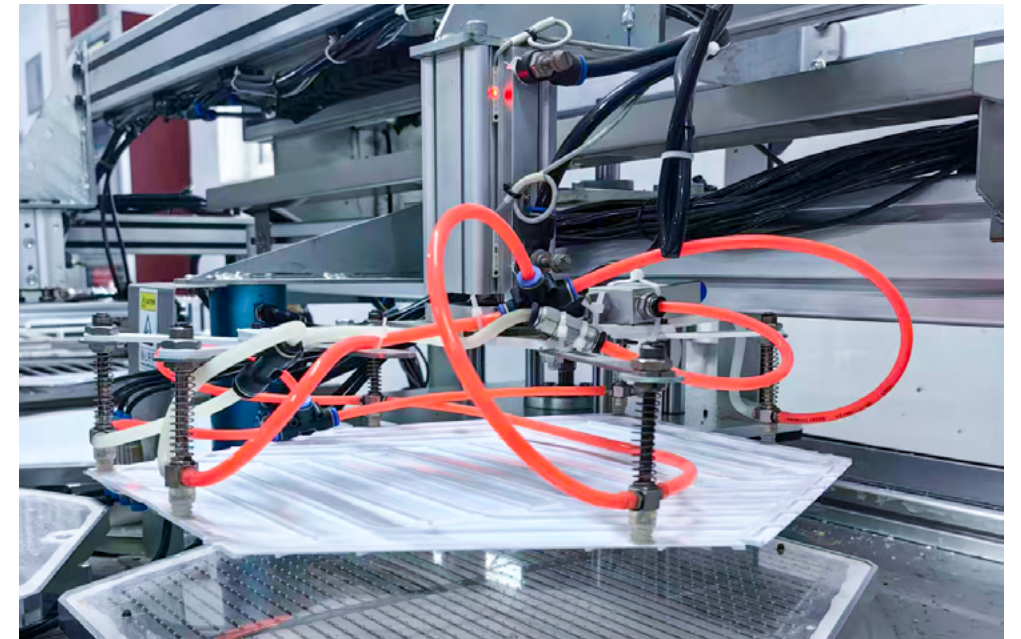
- Counterflow&Crossflow Heat Exchangers
- Mair Polymer Membrane Technology



OEM/Size
Customizable

It is mainly made of a polymer base film and a hydrophilic coating as a supporting skeleton.

The film is assembled with a plastic frame to form a heat exchange core.



Innovation for Building Carbon Neutrality

Project of the National Key R&D Program during the "13th Five-Year Plan" Period

Development of Near-Zero Energy Consumption Building Technology Systems and Key Technologies



Chief Expert of Menred Polymer Laboratory

Yu Dongming, Chief Engineer

Leader of the 13th Five-Year Plan research project "Development of Near-Zero Energy Consumption Building Technology Systems and Key Technologies"

Lead researcher of Zhejiang Manufacturing Standard 《Oxygen-Barrier Cross-Linked Polyethylene (PE-X) Pipes》

Member of the Expert Committee of China Plastics Processing Industry Association

- Over 60 years of industry experience
- Dedicated to talent cultivation and R&D, with remarkable achievements
- Holder of more than 30 Chinese patents, 1 international patent, and author of 2 monographs



Dean of Manred Group's New Energy Housing Research Institute

Zhang Ziping, Professor

Dean of EEH Radiant HVAC Advanced Research Institute, New Energy Housing Research Institute of Manred Group

Former Dean of the School of Urban Construction, Hebei University of Engineering

Vice Chairman of Hebei Refrigeration Society

Deputy Director of the National Heat Pump Professional Committee

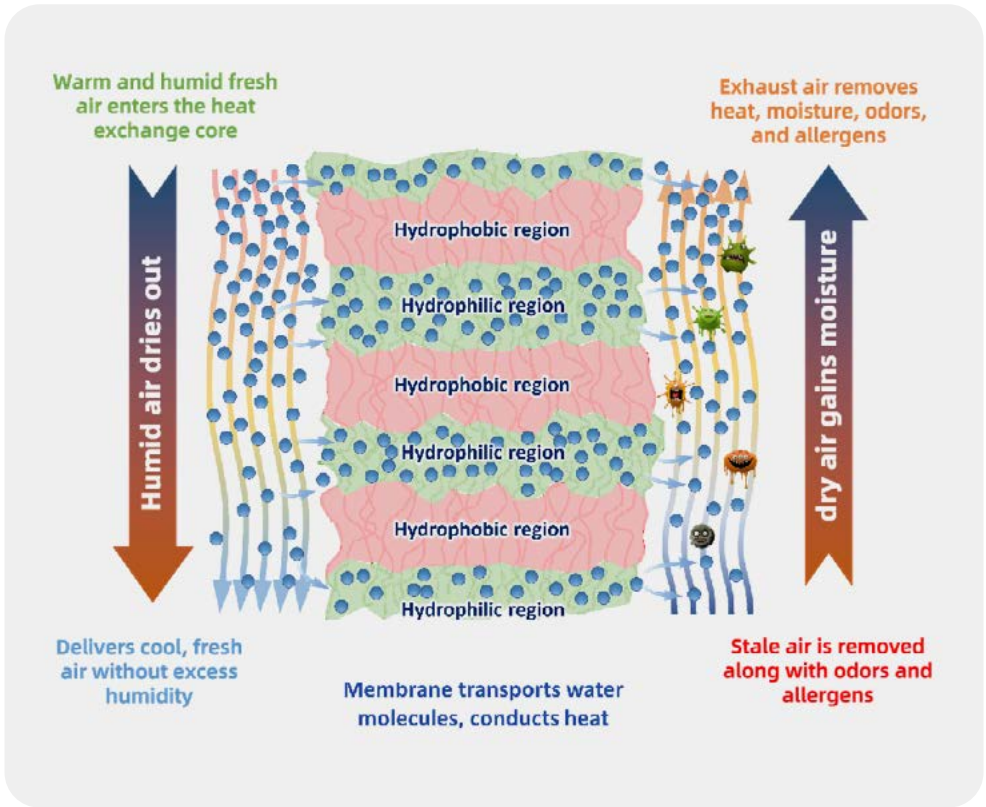
- Over 20 research projects at the national, provincial/municipal levels, and in collaboration with enterprises
- 4 provincial/municipal-level science and technology awards
- More than 30 published academic papers

High Moisture Transfer Efficiency

High-performance humidity control hydrophilic channels ensure efficient moisture exchange.

- Air tightness non-porous membrane
- Keep vacuum airtight
- Selective osmosis
- Anti-scaling
- Anti-biological pollution
- Special channels and acid-based characteristics of the membrane surface

Mair Polymer membrane transfers humidity (if needed) into the Fresh Air (FA) stream (winter) and reduce moisture from the FA stream during periods of high outdoor humidity (summer). It allows heat and humidity to be transferred to the fresh supply air.



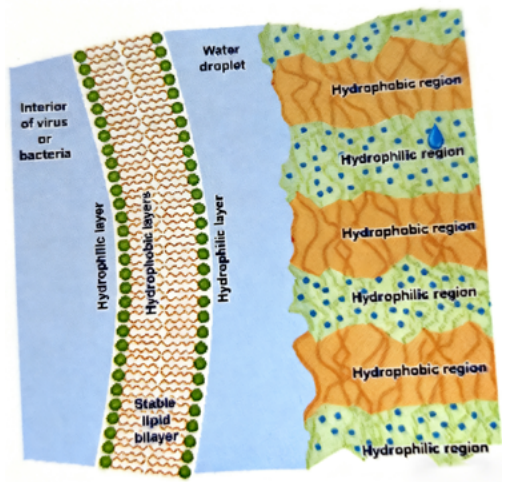
Pathogen Interactions With Membrane



Performance Type	Test Microbe/Virus	Indicator	Result
Antiviral	General viruses	Antiviral Activity Rate	99.26%
Antibacterial	Escherichia coli	Antibacterial Activity Value	> 5.5 (> 99.999%)
Antibacterial	Staphylococcus	Antibacterial Activity Value	> 5.0 (> 99.999%)

Pathogens Approach

Most viruses and bacteria are protected by a cell membrane or envelope known as a lipid bilayer that regulates its internal and external environments.



CFE-366AC

High performance, long life and low maintenance

Description

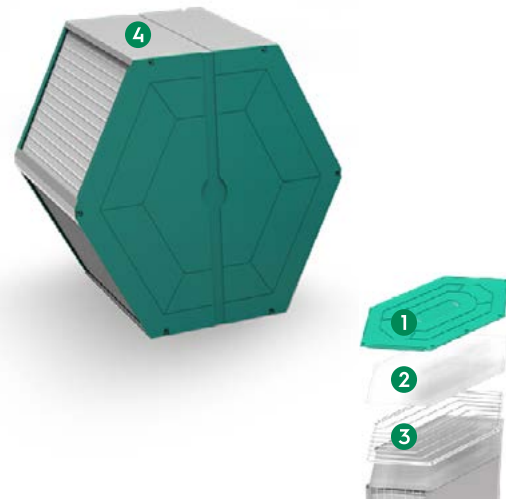
Our CFE-366AC counterflow enthalpy exchangers feature unique Menred Nanoporous membrane technology. It allows both humidity and heat to be transferred to a fresh supply air. Pathogens, odors and pollutants are released directly outside as the air is exchanged.

Antiviral
99%

Antimicrobial
99%

CNAS
certification

Polymer
without
internal
leakage



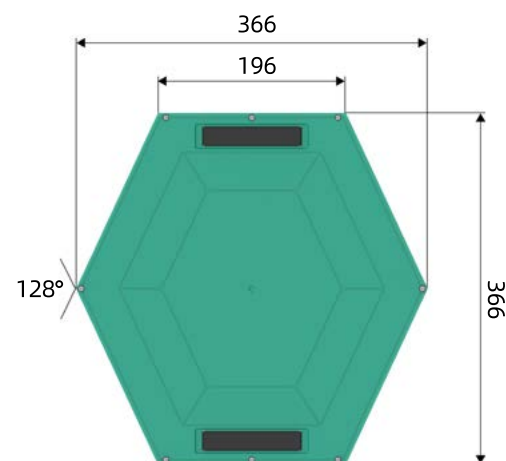
- No paper core
- Antimicrobial
- Nonporous membrane
- No air leakage
- No cross contamination

- ① ABS Cover
- ② Nanoporous membrane
- ③ ABS Frame
- ④ Aluminum Cover

Product Benefits

- Humidity is also transferred
- Reduces fluctuations in humidity
- Integrated membrane blocks viruses, bacteria or mold spores in the supply air
- Wide range of designs and sizes
- Highly sensitive and latent transfer capacity
- No accumulation of condensation due to design
- Lower freezing limits and higher overall efficiency
- Easy to clean and maintain

Product Dimensions (mm)



*OEM/Size
Customizable

Length	366
Width	196
Height	366
Layer Height	2.35
*Total Height	250



Reusable



Washable



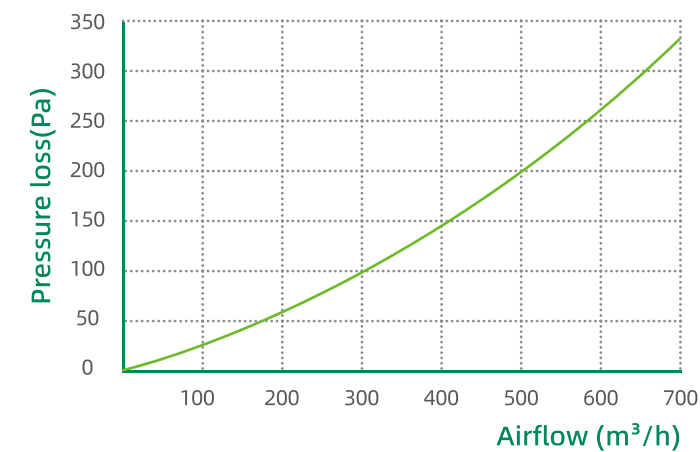
Moisture
Resistance



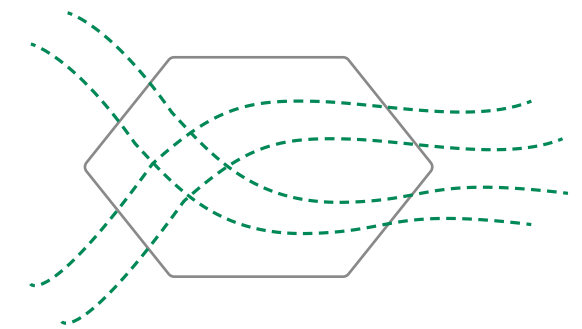
Frost
Resistant

*OEM/Size Customizable: Only custom total height is supported.

Pressure Loss

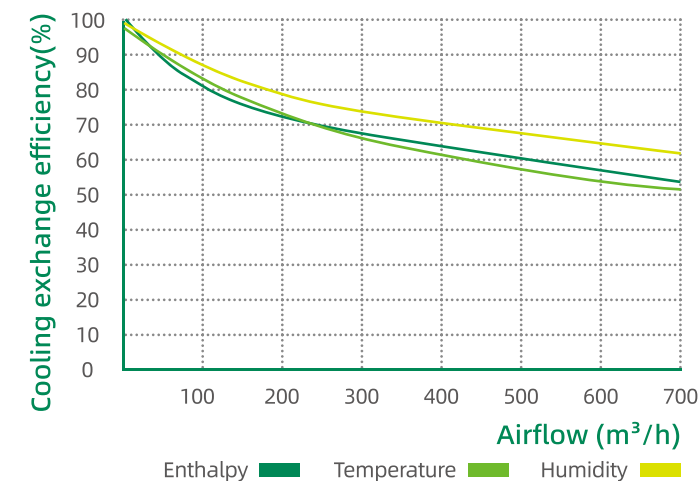


Wind Direction Map

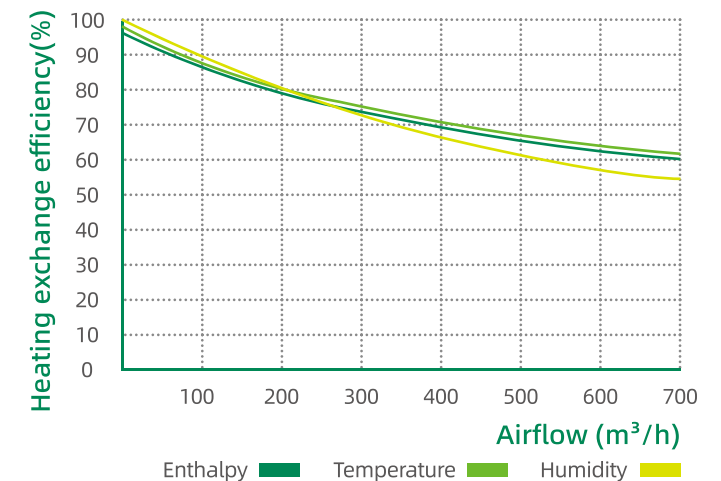


*Note: GB/T 21087-2020

Cooling Exchange Efficiency



Heating Exchange Efficiency



*Note: The new national standard Heat Recovery Ventilator Units (GB/T 21087 - 2020) requires:

Total heat exchange efficiency: cooling capacity recovery $\geq 55\%$, heat capacity recovery $\geq 60\%$.
Sensible heat exchange efficiency: cooling capacity recovery $\geq 65\%$, heat capacity recovery $\geq 70\%$.

CFE-366AC-T

High performance, long life and low maintenance

Description

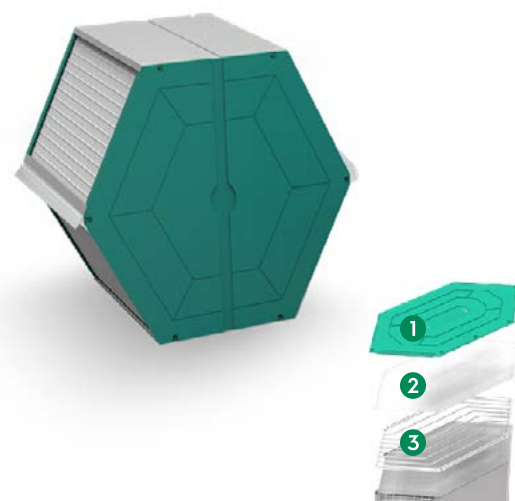
Our CFE-366AC-T counterflow enthalpy exchangers feature unique Menred Nanoporous membrane technology. It allows both humidity and heat to be transferred to a fresh supply air. Pathogens, odors and pollutants are released directly outside as the air is exchanged.

Antiviral
99%

Antimicrobial
99%

CNAS
certification

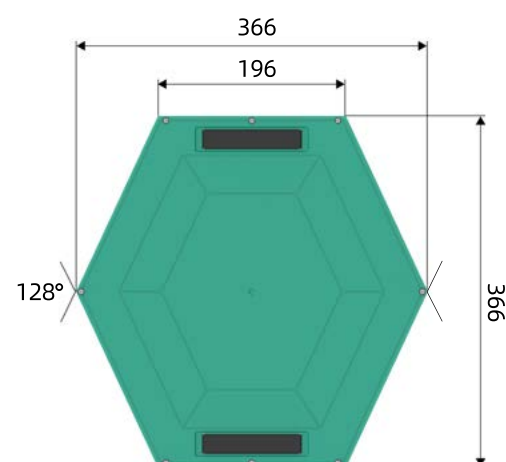
Polymer
without
internal
leakage



Product Benefits

- Humidity is also transferred
- Reduces fluctuations in humidity
- Integrated membrane blocks viruses, bacteria or mold spores in the supply air
- Wide range of designs and sizes
- Highly sensitive and latent transfer capacity
- No accumulation of condensation due to design
- Lower freezing limits and higher overall efficiency
- Easy to clean and maintain

Product Dimensions (mm)



*OEM/Size
Customizable

Length	366
Width	196
Height	366
Layer Height	2.35
*Total Height	250

- No paper core
- Antimicrobial
- Nonporous membrane
- No air leakage
- No cross contamination

- 1 ABS Cover
- 2 Nanoporous membrane
- 3 ABS Frame



Reusable



Washable



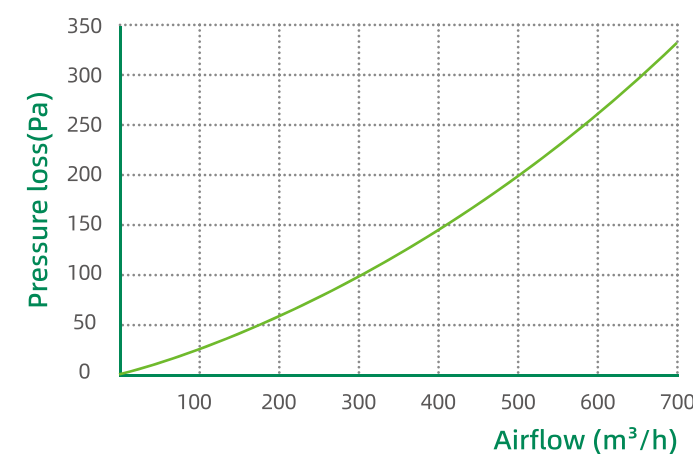
Moisture
Resistance



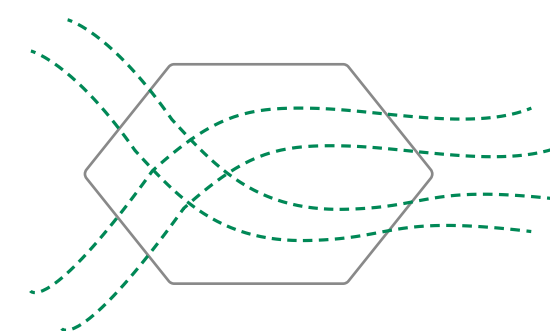
Frost
Resistant

*OEM/Size Customizable: Only custom total height is supported.

Pressure Loss

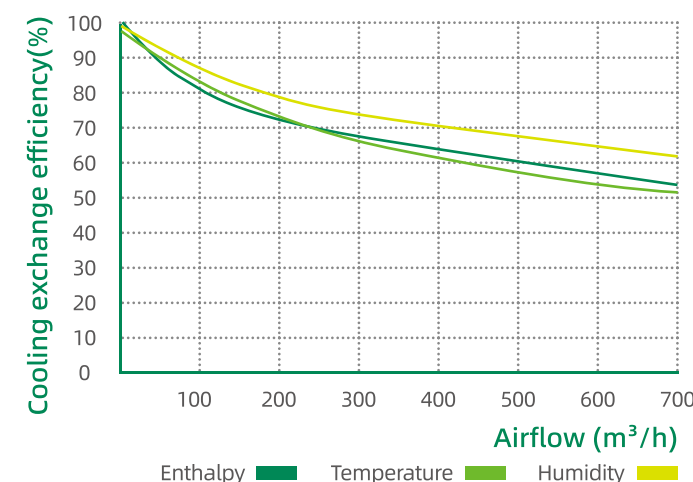


Wind Direction Map

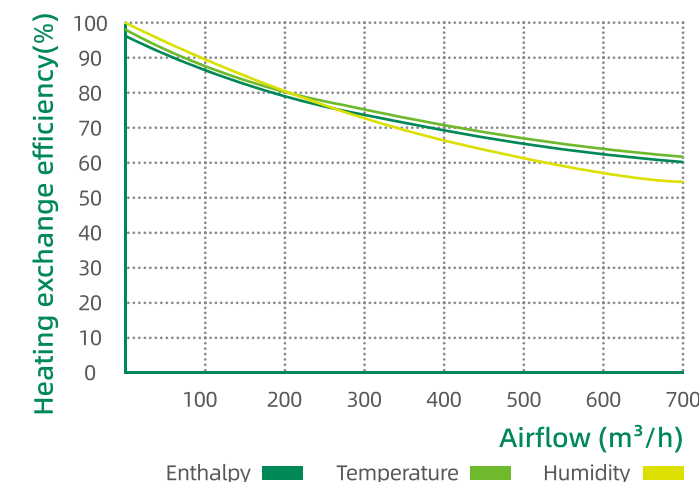


*Note: GB/T 21087-2020

Cooling Exchange Efficiency



Heating Exchange Efficiency



*Note: The new national standard Heat Recovery Ventilator Units (GB/T 21087 - 2020) requires:

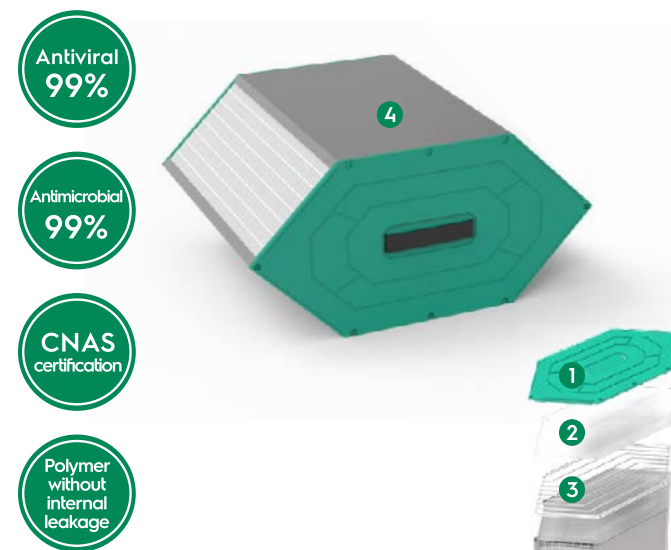
Total heat exchange efficiency: cooling capacity recovery $\geq 55\%$, heat capacity recovery $\geq 60\%$.
Sensible heat exchange efficiency: cooling capacity recovery $\geq 65\%$, heat capacity recovery $\geq 70\%$.

CFE-400SC

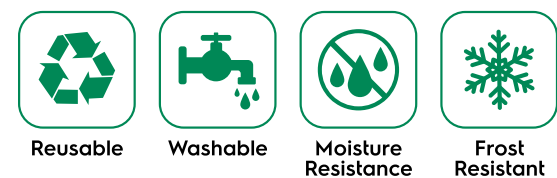
High performance, long life and low maintenance

Description

Our CFE-400SC counterflow enthalpy exchangers feature unique Menred Nanoporous membrane technology. It allows both humidity and heat to be transferred to a fresh supply air. Pathogens, odors and pollutants are released directly outside as the air is exchanged.



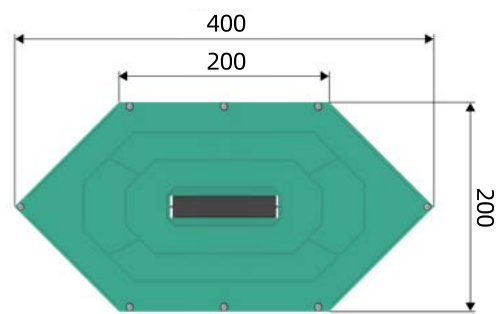
- No paper core
- Antimicrobial
- Nonporous membrane
- No air leakage
- No cross contamination



Product Benefits

- Humidity is also transferred
- Reduces fluctuations in humidity
- Integrated membrane blocks viruses, bacteria or mold spores in the supply air
- Wide range of designs and sizes
- Highly sensitive and latent transfer capacity
- No accumulation of condensation due to design
- Lower freezing limits and higher overall efficiency
- Easy to clean and maintain

Product Dimensions (mm)

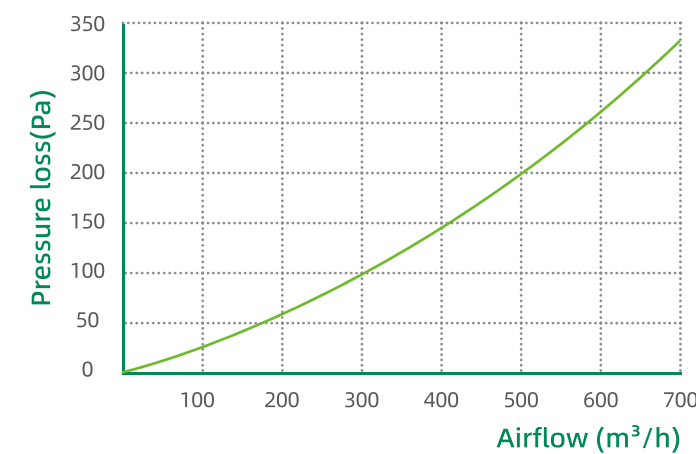


*OEM/Size Customizable

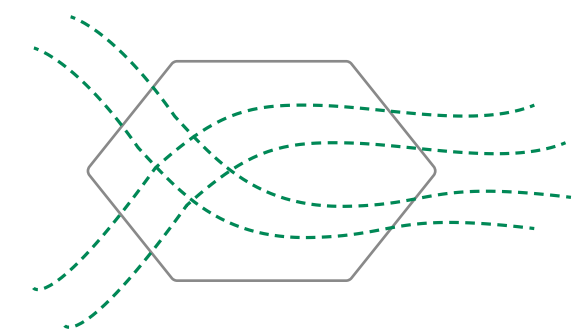
Length	400
Width	200
Height	200
Layer Height	2.35
*Total Height	452

*OEM/Size Customizable: Only custom total height is supported.

Pressure Loss

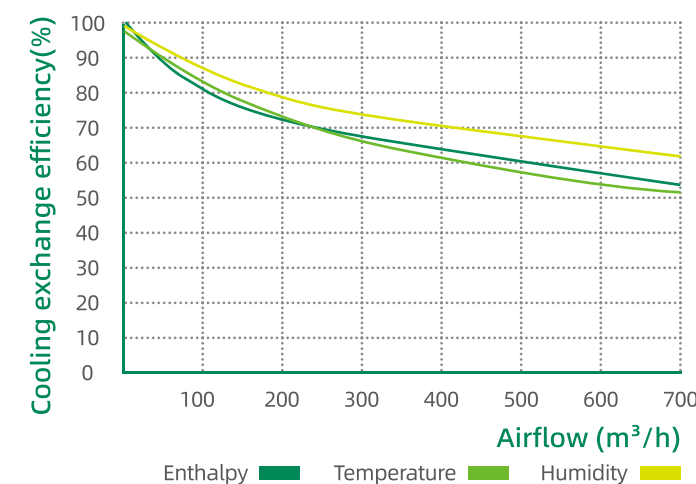


Wind Direction Map

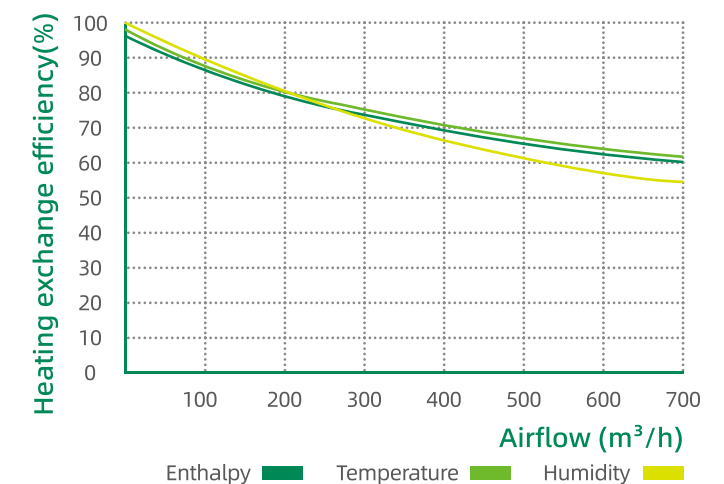


*Note: GB/T 21087-2020

Cooling Exchange Efficiency



Heating Exchange Efficiency



*Note: The new national standard Heat Recovery Ventilator Units (GB/T 21087 - 2020) requires:

Total heat exchange efficiency: cooling capacity recovery $\geq 55\%$, heat capacity recovery $\geq 60\%$.
Sensible heat exchange efficiency: cooling capacity recovery $\geq 65\%$, heat capacity recovery $\geq 70\%$.

CFE-385SC

High performance, long life and low maintenance

Description

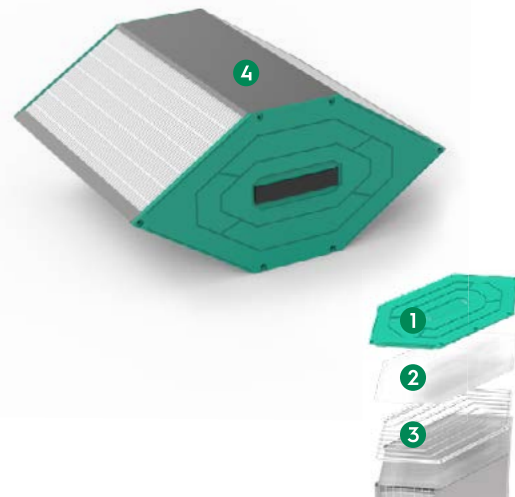
Our CFE-385SC counterflow enthalpy exchangers feature unique Menred Nanoporous membrane technology. It allows both humidity and heat to be transferred to a fresh supply air. Pathogens, odors and pollutants are released directly outside as the air is exchanged.

Antiviral
99%

Antimicrobial
99%

CNAS
certification

Polymer
without
internal
leakage



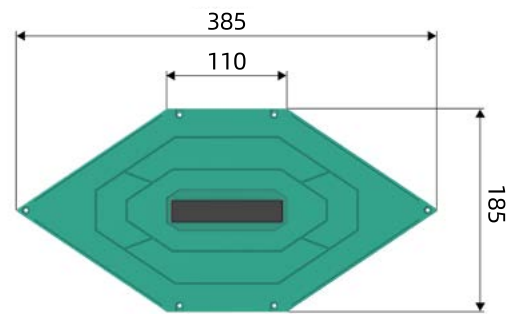
- No paper core
- Antimicrobial
- Nonporous membrane
- No air leakage
- No cross contamination

- ① ABS Cover
- ② Nanoporous membrane
- ③ ABS Frame
- ④ SUS Cover

Product Benefits

- Humidity is also transferred
- Reduces fluctuations in humidity
- Integrated membrane blocks viruses, bacteria or mold spores in the supply air
- Wide range of designs and sizes
- Highly sensitive and latent transfer capacity
- No accumulation of condensation due to design
- Lower freezing limits and higher overall efficiency
- Easy to clean and maintain

Product Dimensions (mm)



*OEM/Size
Customizable

Length	385
Width	110
Height	185
Layer Height	2.5
*Total Height	448.5



Reusable



Washable



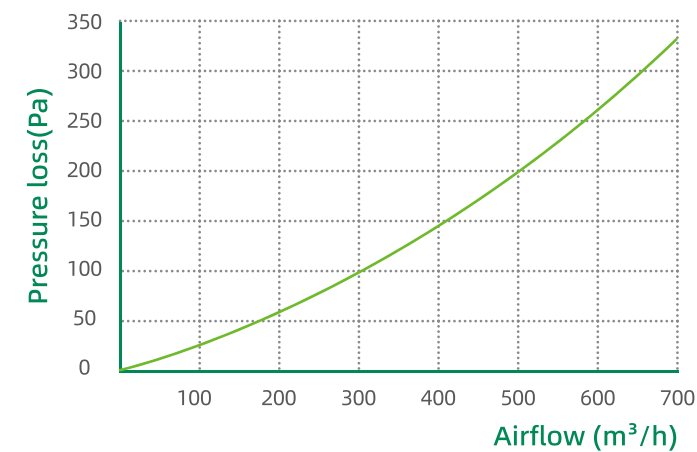
Moisture
Resistance



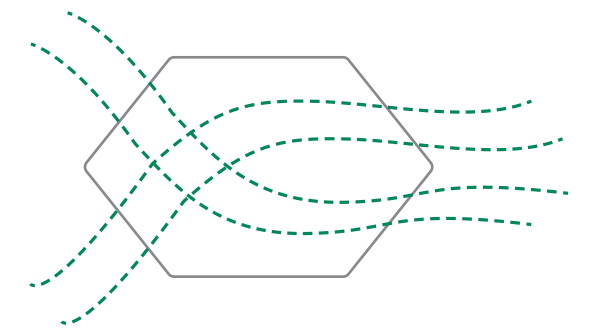
Frost
Resistant

*OEM/Size Customizable: Only custom total height is supported.

Pressure Loss

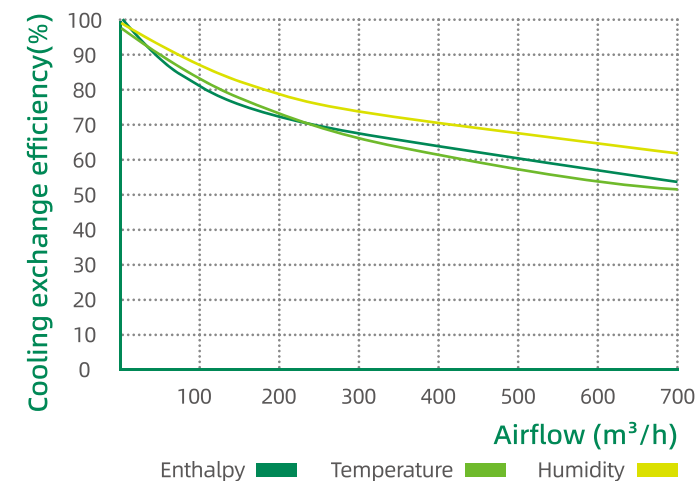


Wind Direction Map

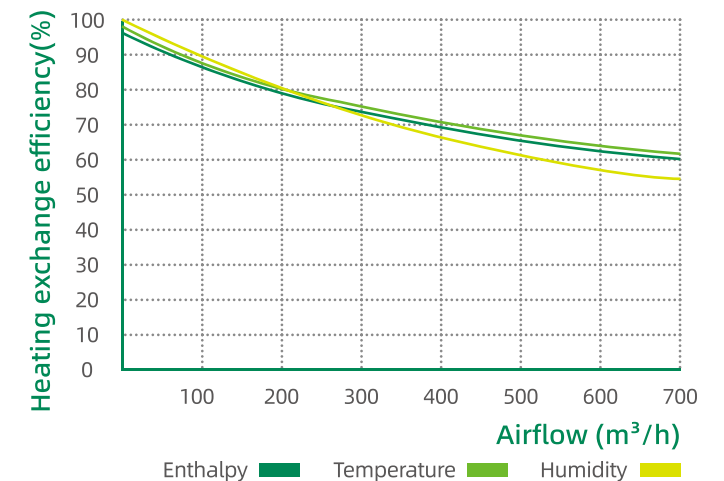


*Note: GB/T 21087-2020

Cooling Exchange Efficiency



Heating Exchange Efficiency



*Note: The new national standard Heat Recovery Ventilator Units (GB/T 21087 - 2020) requires:

Total heat exchange efficiency: cooling capacity recovery $\geq 55\%$, heat capacity recovery $\geq 60\%$.
Sensible heat exchange efficiency: cooling capacity recovery $\geq 65\%$, heat capacity recovery $\geq 70\%$.

XFE-332SC

High performance, long life and low maintenance

Description

Our XFE-332SC counterflow enthalpy exchangers feature unique Menred Nanoporous membrane technology. It allows both humidity and heat to be transferred to a fresh supply air. Pathogens, odors and pollutants are released directly outside as the air is exchanged.

Antiviral
99%

Antimicrobial
99%

CNAS
certification

Polymer
without
internal
leakage

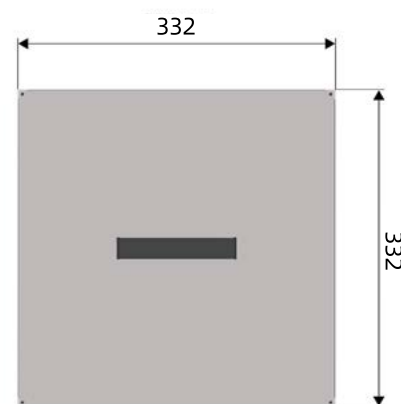
- No paper core
- Antimicrobial
- Nonporous membrane
- No air leakage
- No cross contamination

- 1 SUS Cover
- 2 Nanoporous membrane
- 3 PP Frame

Product Benefits

- Humidity is also transferred
- Reduces fluctuations in humidity
- Integrated membrane blocks viruses, bacteria or mold spores in the supply air
- Wide range of designs and sizes
- Highly sensitive and latent transfer capacity
- No accumulation of condensation due to design
- Lower freezing limits and higher overall efficiency
- Easy to clean and maintain

Product Dimensions (mm)



*OEM/Size
Customizable

Length	332
Width	332
Layer Height	2.35
*Total Height	230



Reusable



Washable



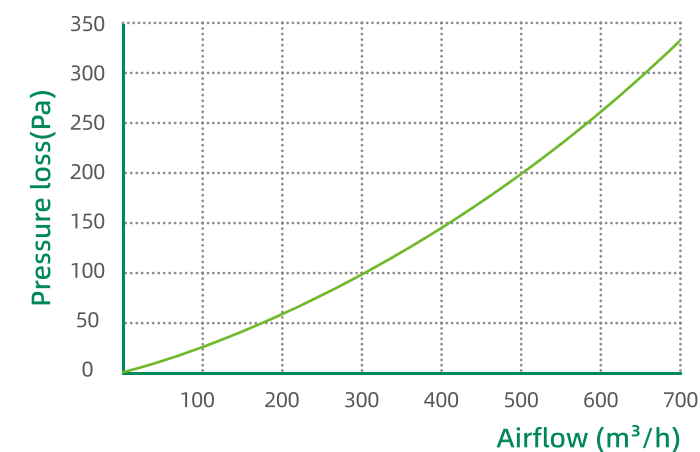
Moisture
Resistance



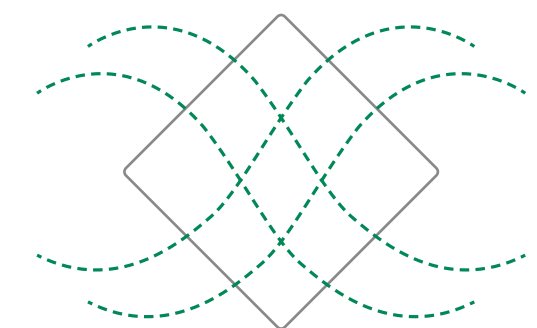
Frost
Resistant

*OEM/Size Customizable: Only custom total height is supported.

Pressure Loss

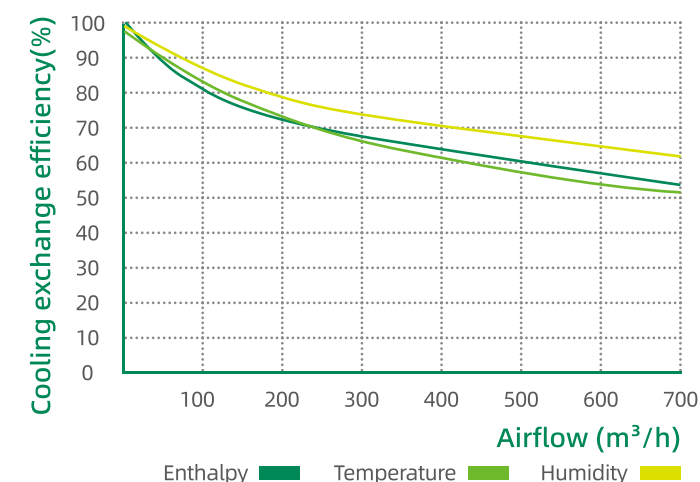


Wind Direction Map

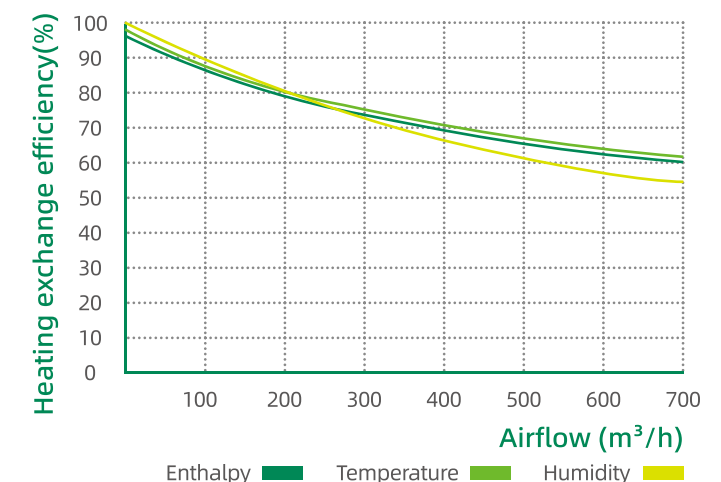


*Note: GB/T 21087-2020

Cooling Exchange Efficiency



Heating Exchange Efficiency



*Note: The new national standard Heat Recovery Ventilator Units (GB/T 21087 - 2020) requires:

Total heat exchange efficiency: cooling capacity recovery $\geq 55\%$, heat capacity recovery $\geq 60\%$.
Sensible heat exchange efficiency: cooling capacity recovery $\geq 65\%$, heat capacity recovery $\geq 70\%$.