# RETURN ON INVESTMENT

## AIR-TO-AIR HEAT EXCHANGERS

## THE PROMISE
## THE PROOF
## HEATEX

## WHY HEAT AND ENERGY RECOVERY?

Recovering dissipated heat from indoor areas can save overall energy costs and consumption. The benefits of using an air-to-air heat exchanger, regardless of whether the exchanger is rotary or plate, outweigh systems that do not incorporate energy recovery at all.

Air-to-air heat exchangers reduce the load on the central HVAC system and thereby significantly reduce energy costs for either heating or cooling. Each exchanger is customized for its specific application to get maximum efficiency and reliable operation.

## AIR-TO-AIR HEAT EXCHANGERS

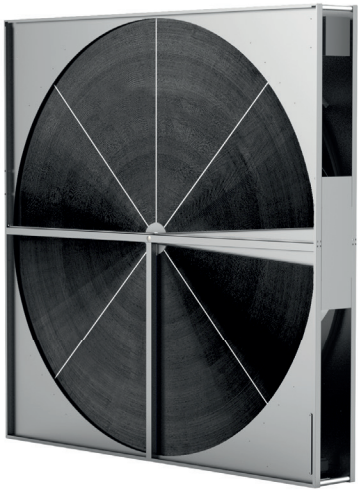
An air-to-air heat exchanger is a perfect solution for recovering otherwise wasted energy. It reduces the load on the central HVAC system and thereby significantly reduce energy costs for either heating or cooling. Each exchanger is customized for its specific application to get maximum efficiency and reliable operation.

The ventilation system's running costs can be reduced by more than 20% using a air-to-air heat exchanger compared to other solutions.

## HEATEX HEAT EXCHANGERS

Our product range include many models, sizes and configurations in different materials to cope with various environments and provide high efficiency and a long lifetime.

### ROTARY HEAT EXCHANGER



### CROSSFLOW HEAT EXCHANGER

NORTH EAST

# NEW YORK, NEW YORK

ENVIRONMENT: MIXED-HUMID

## INPUT DATA

Air flow: 35 000 SCFM
Exhaust air temperature (winter/ summer) : 72/ 74 $^0$F
Total yearly service hours: 8760 (24/7 operation)

Energy cost heating: 0.029 USD/ kWh
Energy saving heating: 33 005 USD
Energy cost cooling: 0.14 USD/kWh
Energy saving cooling: 9 031 USD

**Heatex Model H2**
**List price: 61 244 USD**

(Heat exchanger price also can be considered to be the total cost investment, thus payback is calculated for the entire system.)

## RESULTS

Total yearly energy reduction: 1 273 673 kWh
Yearly $CO_2$ reduction **: 10 796 lb

Yearly savings: 42 036 USD
Payback period**: Approx. 18 Months

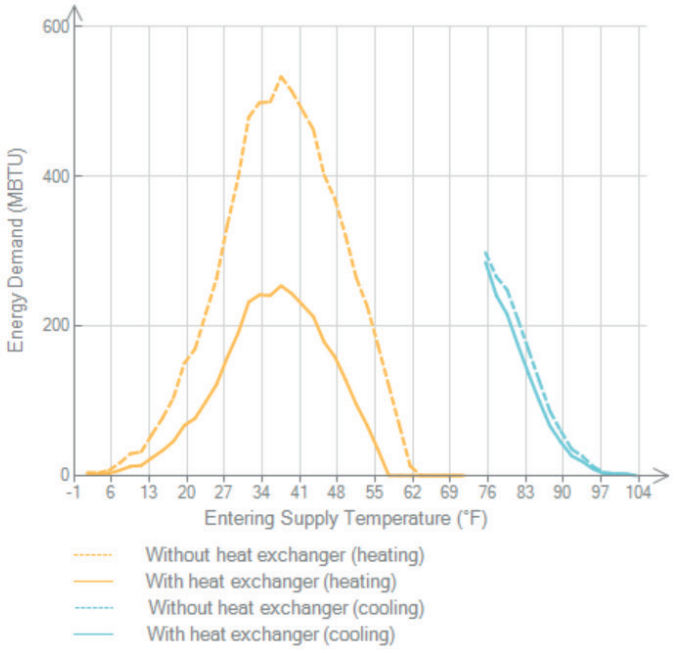
**Installed Heating/Cooling Power**

| | | Without heat exchanger | With heat exchanger | Installed power reduction |
|---|---|---|---|---|
| Heating coil max power | (BTU/h) | 3 584 472 | 1 441 905 | 2 142 567 |
| Cooling coil max power | (BTU/h) | 2 453 200 | 1 747 134 | 706 066 |

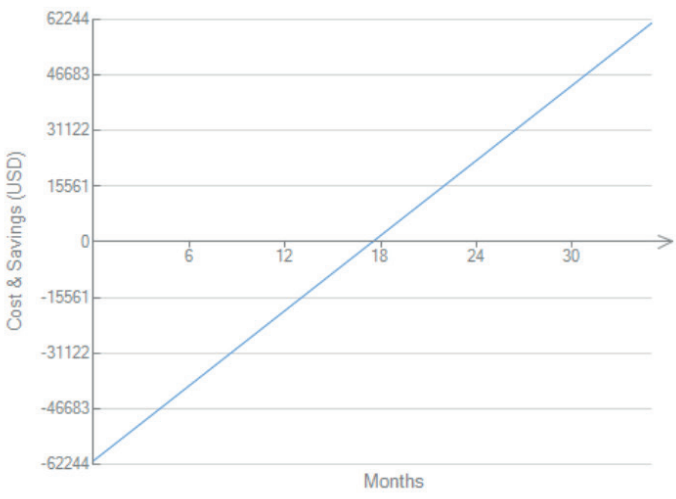
**Energy Usage**

| | | Without heat exchanger | With heat exchanger | Energy saving |
|---|---|---|---|---|
| Heating coil | (MBTU) | 7 291.895 | 3 166.223 | 4 125.672 |
| Cooling coil | (MBTU) | 1 542.175 | 1 321.896 | 220.279 |

**Energy Demand**




**Break-Even**




* Geographical location data source: © 2017 ASHRAE
**Assuming 300g $CO_2$/kWh (EU member states (28) average of $CO_2$ equivalent pollution from electricity consumption and chiller EER=3.

SOUTH

# HOUSTON, TEXAS

ENVIRONMENT: HOT AND HUMID

## INPUT DATA

Air flow: 24 000 CFM
Exhaust air temperature (winter/ summer): 75/ 70 $^{0}$F
Total yearly service hours: 8760 (24/7 operation)

Energy cost heating: 0.029 USD/ kWh
Energy saving heating: 8 991 USD
Energy cost cooling: 0.08 USD/kWh
Energy saving cooling: 17 719 USD

**Heatex Model H2**
**List price: 27 359 USD**

(Heat exchanger price also can be considered to be the total cost investment, thus payback is calculated for the entire system.)

## RESULTS

Total yearly energy reduction: 555 169 kWh
Yearly $CO_2$ reduction**: 4 451 lb
Yearly savings: 26 710 USD
Payback period**: Approx. 12 Months

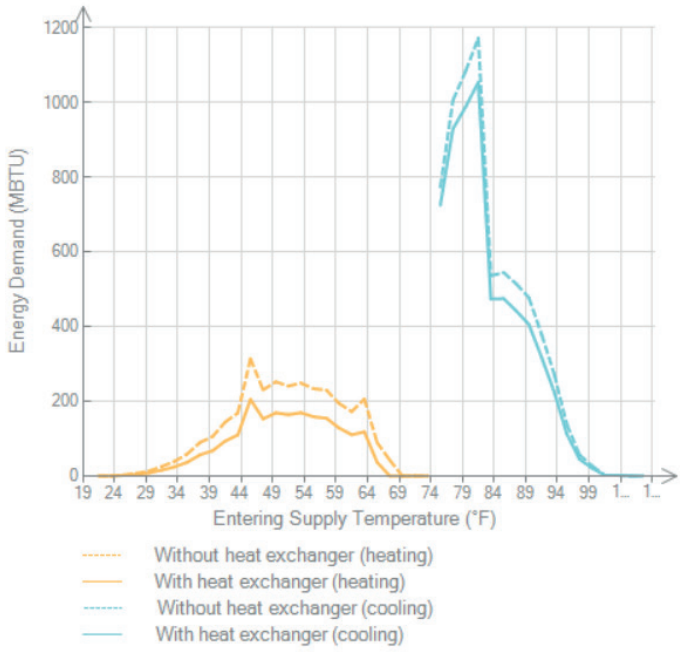
**Installed Heating/Cooling Power**

| | | Without heat exchanger | With heat exchanger | Installed power reduction |
|---|---|---|---|---|
| Heating coil max power | (BTU/h) | 2 342 987 | 1 386 462 | 956 525 |
| Cooling coil max power | (BTU/h) | 2 161 040 | 1 794 875 | 366 165 |

**Energy Usage**

| | | Without heat exchanger | With heat exchanger | Energy saving |
|---|---|---|---|---|
| Heating coil | (MBTU) | 3 102.712 | 1 978.786 | 1 123.926 |
| Cooling coil | (MBTU) | 6 986.824 | 6 216.435 | 770.389 |

**Energy Demand**

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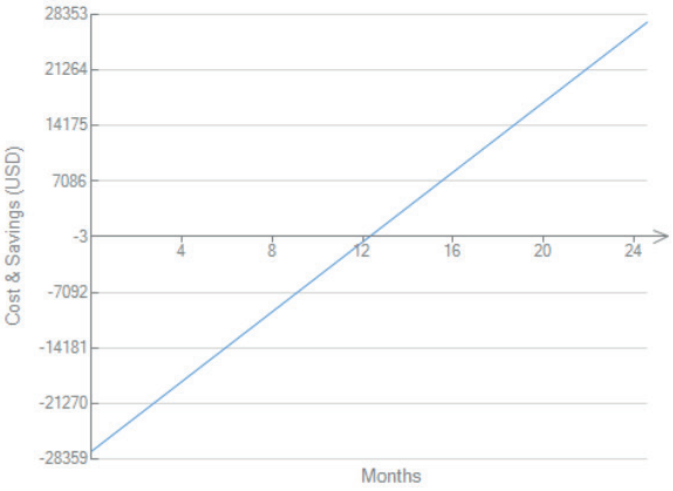


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**Assuming 300g $CO_2$/kWh (EU member states (28) average of $CO_2$ equivalent pollution from electricity consumption and chiller EER=3.

MIDWEST

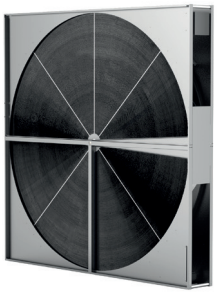
# MINNEAPOLIS, MINNESOTA

ENVIRONMENT: COLD

## INPUT DATA

Air flow: 5200 CFM
Exhaust air temperature (winter/ summer): 70/ 75 $^0$F
Total yearly service hours: 8760 (24/7 operation)

Energy cost heating: 0.029 USD/ kWh
Energy saving heating: 6 694 USD
Energy cost cooling: 0.10 USD/kWh
Energy saving cooling: 2 052 USD



**Heatex Model E**
**List price: 7 019 USD**

(Heat exchanger price also can be considered to be the total cost investment, thus payback is calculated for the entire system.)

## RESULTS

Total yearly energy reduction: 265 991 kWh
Yearly $CO_2$ reduction**: 2 211 lb

Yearly savings: 8 747 USD
Payback period**: Approx. 10 Months

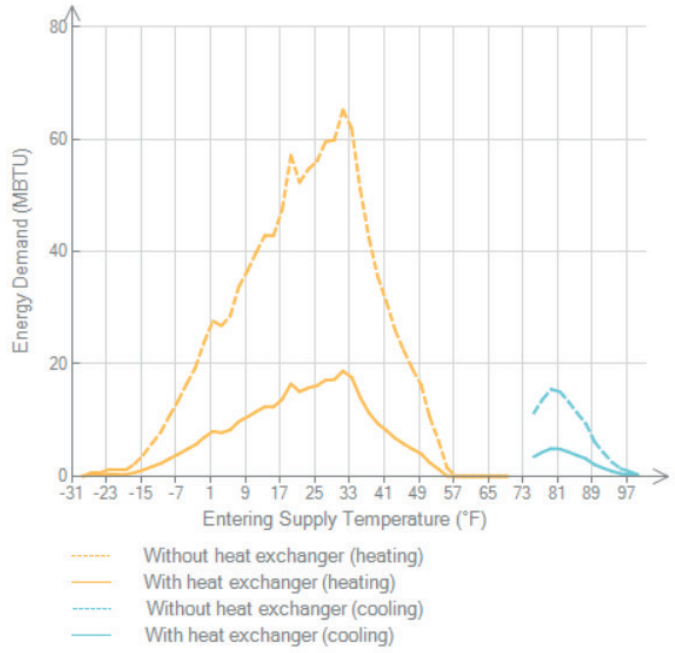
**Installed Heating/Cooling Power**

| | | Without heat exchanger | With heat exchanger | Installed power reduction |
|---|---|---|---|---|
| Heating coil max power | (BTU/h) | 614 927 | 174 941 | 439 986 |
| Cooling coil max power | (BTU/h) | 286 186 | 102 061 | 184 125 |

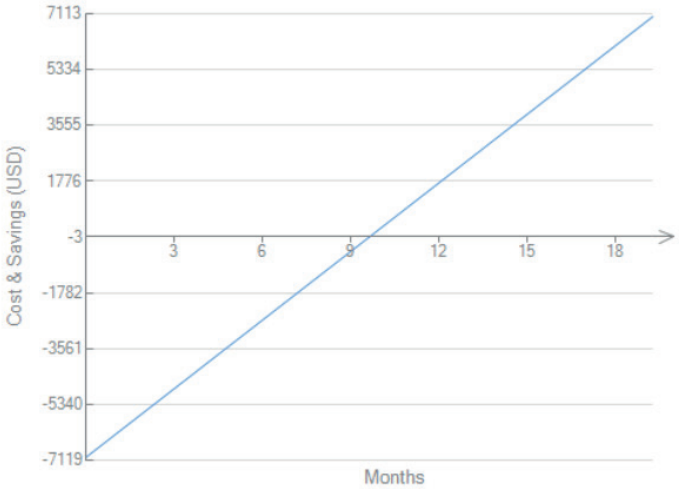
**Energy Usage**

| | | Without heat exchanger | With heat exchanger | Energy saving |
|---|---|---|---|---|
| Heating coil | (MBTU) | 1 164.365 | 327.525 | 836.841 |
| Cooling coil | (MBTU) | 104.669 | 33.912 | 70.757 |

**Energy Demand**




**Break-Even**

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SOUTH WEST

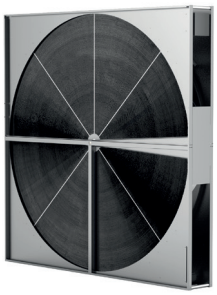
# PHOENIX, ARIZONA

ENVIRONMENT: HOT AND DRY

## INPUT DATA

Air flow: 20 000 SCFM
Exhaust air temperature (winter/ summer): 70/ 75 $^0$F
Total yearly service hours: 8760 (24/7 operation)

Energy cost heating: 0.029 USD/ kWh
Energy saving heating: 5 909 USD
Energy cost cooling: 0.12 USD/kWh
Energy saving cooling: 18 683 USD



**Heatex Model E**
**List price: 15 011 USD**

(Heat exchanger price also can be considered to be the total cost investment, thus payback is calculated for the entire system.)

## RESULTS

Total yearly energy reduction: 372 897 kWh
Yearly $CO_2$ reduction**: 3 622 lb

Yearly savings: 24 592 USD
Payback period**: Approx. 7 Months

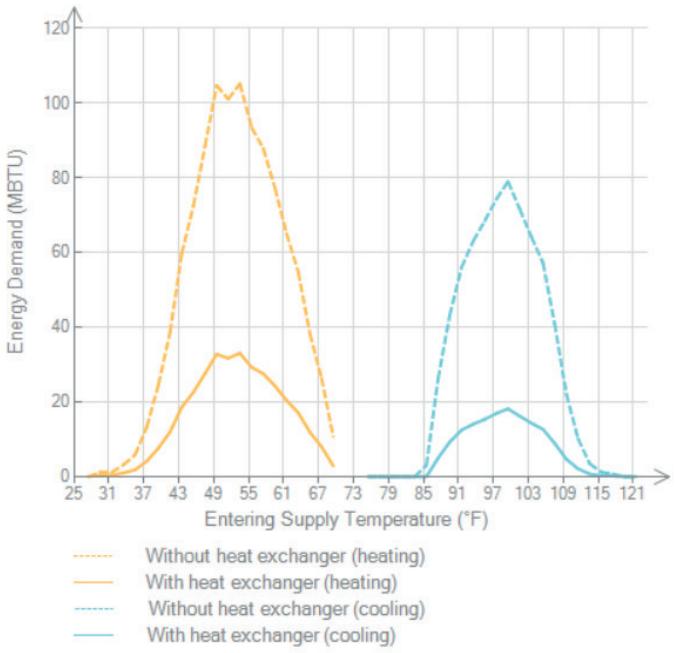
**Installed Heating/Cooling Power**

| | | Without heat exchanger | With heat exchanger | Installed power reduction |
|---|---|---|---|---|
| Heating coil max power | (BTU/h) | 1 191 532 | 366 749 | 824 783 |
| Cooling coil max power | (BTU/h) | 691 141 | 149 977 | 541 164 |

**Energy Usage**

| | | Without heat exchanger | With heat exchanger | Energy saving |
|---|---|---|---|---|
| Heating coil | (MBTU) | 1 073.210 | 334.625 | 738.585 |
| Cooling coil | (MBTU) | 684.746 | 150.953 | 533.793 |

**Energy Demand**

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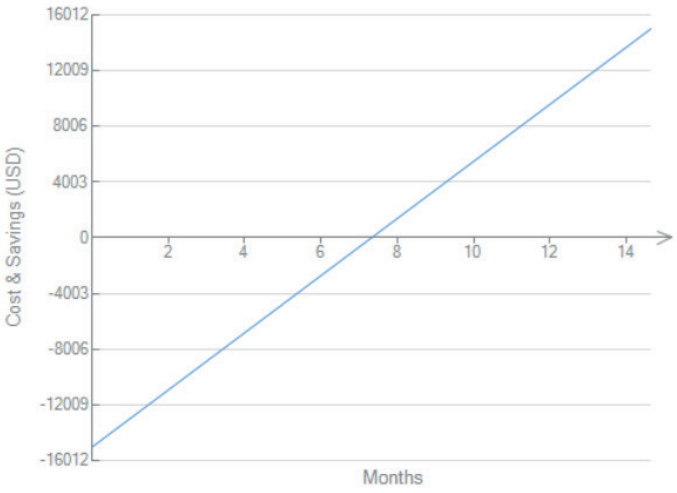


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NORTH WEST

# PORTLAND, OREGON

ENVIRONMENT: MARINE

## INPUT DATA

Air flow: 24 000 CFM
Exhaust air temperature (winter/ summer): 75/ 70 $^{0}$F
Total yearly service hours: 8760 (24/7 operation)

Energy cost heating: 0.029 USD/ kWh
Energy saving heating: 25 828 USD
Energy cost cooling: 0.09 USD/kWh
Energy saving cooling: 2 840 USD

**Heatex Model H**
**List price: 27 359 USD**

(Heat exchanger price also can be considered to be the total cost investment, thus payback is calculated for the entire system.)

## RESULTS

Total yearly energy reduction: 978 203 kWh
Yearly $CO_2$ reduction**: 8 030 lb

Yearly savings: 28 668 USD
Payback period**: Approx. 11 Months

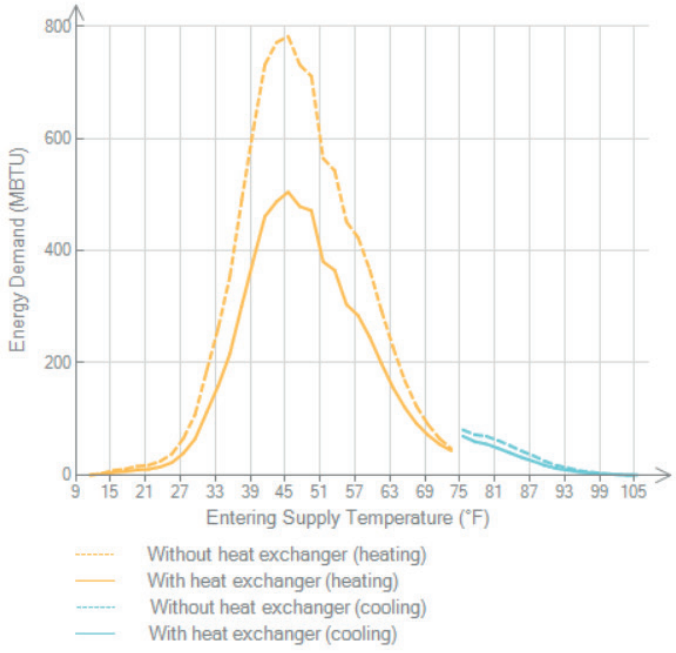
**Installed Heating/Cooling Power**

| | | Without heat exchanger | With heat exchanger | Installed power reduction |
|---|---|---|---|---|
| Heating coil max power | (BTU/h) | 2 756 859 | 1 546 639 | 1 210 220 |
| Cooling coil max power | (BTU/h) | 1 314 420 | 851 563 | 462 857 |

**Energy Usage**

| | | Without heat exchanger | With heat exchanger | Energy saving |
|---|---|---|---|---|
| Heating coil | (MBTU) | 9 292.744 | 6 064.188 | 3 228.556 |
| Cooling coil | (MBTU) | 485.582 | 376.370 | 109.212 |

**Energy Demand**

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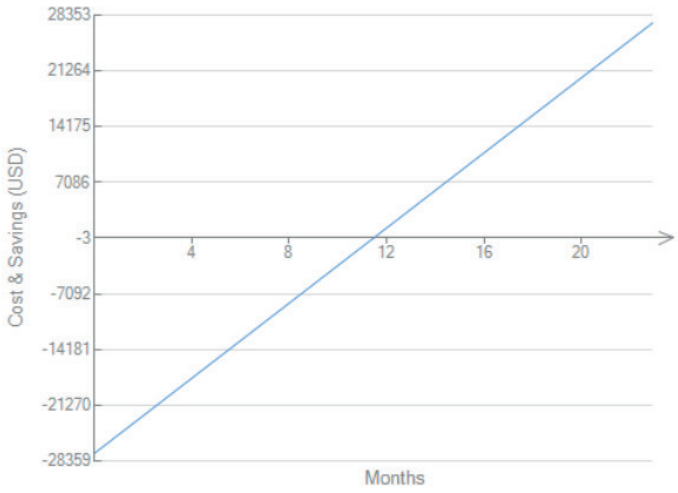


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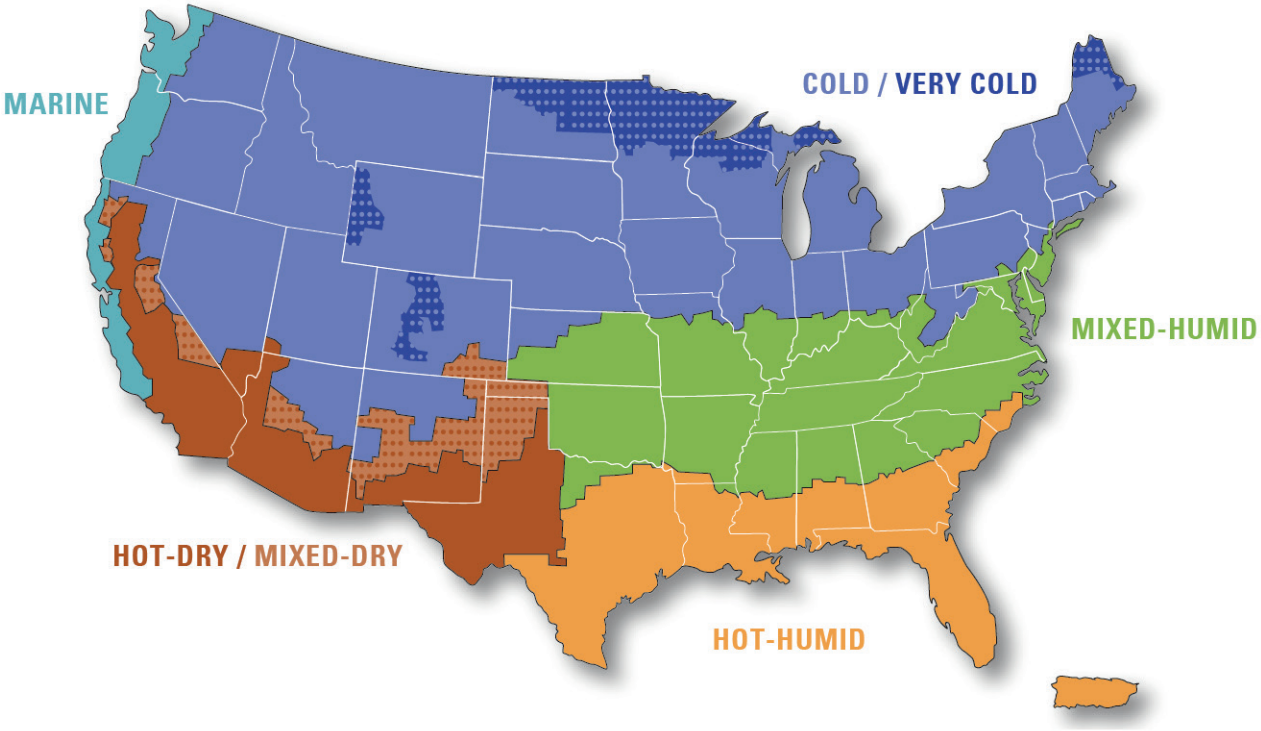
## TOTAL ENERGY EFFICIENCY

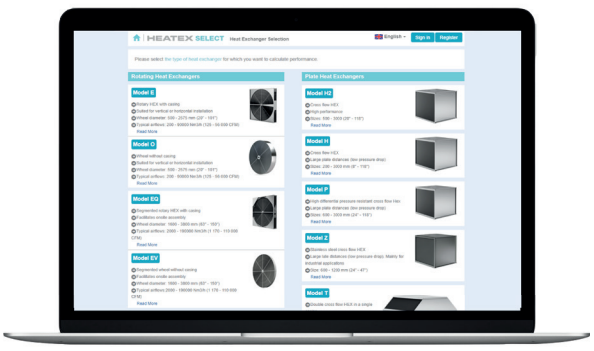
When considering the use of an energy recovery unit such as an plate or rotary heat exchanger, multiple factors has to be taken into account to provide maximum return on investment. These factors are climate zone and energy recovery ratio at the design flow range. Its's also important to make sure performance is maintained over the complete lifetime of the product.




# HEATEX SELECT

By using Heatex Select, our calculation software and it's built in ROI calculator you can calculate the return on investment for any project in the US.

The Return on Investment Calculator approximately indicates the payback amount and time as well as energy saved by installing a Heatex air-to-air heat exchanger.



It features both rotary and plate heat exchangers and is located under the "Summary" tab at the end of the calculation process.

Heatex Select is always available online for free at heatex.com. It enables accurate calculations of product performance under different conditions.

## THE PROMISE:

With Heatex as the leader of air-to-air heat exchangers and heat recovery ventilation solutions, you will have the best possible partner for your heat transfer applications.

## THE PROOF:

With a nation wide team of Sales representatives as well as engineering and production in Natural Bridge Station,VA, Heatex responds quickly to inquiries with an optimized solution for your application.

All Heatex products are custom made and designed to match the customer's technical specifications. Heatex Select, always available on-line for free at heatex.com, enables accurate calculations of the performance of our products under different conditions.

We have a well established reputation of being honest and reliable and hold several certifications covering product and operation quality worldwide, for example AHRI and ISO.

Moreover, our products are field tested and proven to have very high efficiency and a fast ROI.

Being the leader, Heatex will always provide the best expertise to find a solution for your application.

Heatex is a global manufacturer of air-to-air heat exchangers. The company was founded in the 60's, and incorporated into Heatex AB in 1987.

The company uses advanced algorithms to design and improve its products. These are based on scientific calculations within fluid dynamics, the fundamentals of heat transfer and fifty years of practical experience of heat transfer processes.

Heatex products are well known for providing high energy recovery and for enabling a fast return on investment. The company has a history of steady growth and has over the years established itself as the market and technology leader of air-to-air heat transfer.