PoolPak®
DEHUMIDIFICATION THAT WORKS

# RecoSwim™ REC Series

## Environmental Control Systems

PoolPak.com

# The RecoSwim REC Series

Designed for maximum efficiency, the REC Series offers a trusted and flexible environmental control system featuring the latest in technology and design for energy efficient indoor pool climate control.

The proven and reliable REC Series provides you with the energy efficient choice for complete indoor pool environmental control. Premium features and expert design allows the REC Series to offer you improved energy performance while maintaining a safe and comfortable indoor pool environment.

## THE LEADING ENVIRONMENTAL CONTROL SYSTEM

The indoor swimming pool environment is a very aggressive and challenging climate. The air conditions within the indoor pool space can be damaging to your building structure, supporting equipment, and pool accessories. Swimmer and spectator safety is also important as the indoor pool atmosphere can be harmful to lung and eye tissues. For the best protection of your assets, and the safety of your swimmers, the REC Series is the choice for environmental control that offers:

### Proper Ventilation Control

- Maintains proper outside air ventilation in compliance with ASHRAE 62.1 health and safety codes.
- Improves the indoor air quality (IAQ) by removing chemical odors, controlling $CO_2$ and filtering out air-borne debris.

### Pool Air Heating and Cooling

- Complete space heating and cooling to maintain a comfortable environment for the occupants.
- Maintains stable conditions resulting in reduced indoor pool water evaporation rates and improved energy savings.

### Dehumidification and Humidity Control

- Elite condensation prevention, protecting your facilities, assets, and swimmers from damage and harm.
- Tightly controlled humidity levels and effective dehumidification strategies for trusted swimmer comfort and safety.

### Environmentally and Energy Efficient Operation

- Proven heat energy recovery which can be recycled into pool space and water heating, saving you operational and energy costs.
- Factory sealed and enhanced refrigeration system improving total system reliability and reducing the chances of refrigerant system leaks.
- The option for non-mechanical, passive, energy recovery leading to improved energy performance and reduced environmental impacts resulting from non-refrigerant based systems.

- For indoor pools between 200 – 28,000 square feet.
- Capacities from 2 to 60 tons
- Supply air from 1,200 CFM to 30,000 CFM

Critical components are protected outside of the corrosive air stream

Energy efficient, low maintenance, and powerful, 'Blue' EC motor fan systems

The efficient and effective Auto-Fan™ automated fan speed control system

Increased fresh outside air usage for dehumidification and ventilation

Sturdy post and panel construction and the WeatherGuard™ package for trusted system protection

Elite swimmer, spectator, asset, and building protection

Tested system construction resulting in improved reliability and durability in the aggressive indoor pool environment

Premium 'Cross-Flow' direct contact heat recovery system in XF systems

Environmentally sustainable and energy efficient equipment operation processes

The secure Lynx™ energy management and control system (EMCS) with remote access

Flexible, modular design offers reduced costs and increased installation options

Proven energy, service, and operational expense savings

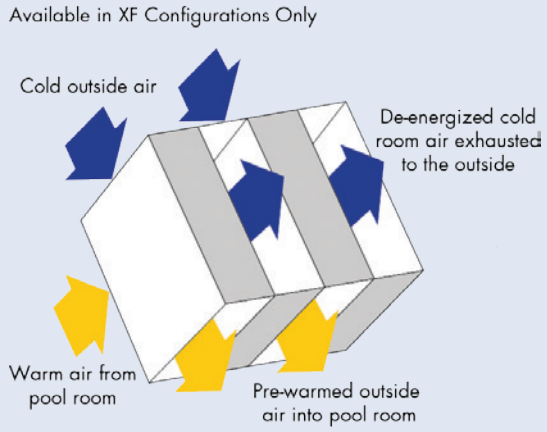
## ENERGY EFFICIENCY EXCEEDING THE GLOBAL STANDARDS

The REC Series is designed for energy efficient, high quality building, facilities, and swimmer protection. Taking energy efficiencies to new levels, the energy performance of the system exceeds current global energy standards and is more advanced than proposed future regulations. The energy performance of the REC Series makes it the system of choice for energy conscious owners.

### 'Cross-flow' Heat Exchanger: Assured Heat Recovery from Exhaust Air

The REC Series is able to save significant heat energy from the pool air by utilizing a 'Cross-Flow' heat recovery device in XF system configurations. This device consists of a series of multiple, opposing, channels through which the pool air and outside air are passed separately.

The 'Cross-Flow' heat exchanger is driven by the natural temperature difference between the outside air and the indoor pool room air. As the warm indoor pool air passes through a channel that is beside a channel with cool outside air, there is significant heat energy transfer through the partitioning plate between the channels and into the opposing air streams.




This process works in reverse as well. When the outside air is warmer that the indoor pool air, heat energy is transfered between the two air streams. The operation of the 'Cross-Flow' heat exchanger results in improved energy recover and reduced operational costs. Because the system works with both types of air temperature scenarios, there is never a time where you are not saving energy and reducing your costs.

The total performance of the system is dependent upon your geographical location and your indoor pool facilities desired comfort conditions. In maximizing the energy performance of the system, the cooler the outside air, the greater the energy recovery performance of the system. During normal operational parameters, the 'Cross-Flow' heat exchanger can recover between 70% and 90% of heat energy from the air streams.

### Refrigeration System Heat Recycling

The REC Series is available with a DX refrigeration system. This system offers cooling, dehumidification, and energy recovery to improve system performance and reduce operational and energy costs. This specially designed refrigerant system provides environmentally friendly and energy efficient operation. The heat exchanging capabilities of the refrigerant coils has been enhanced to reduce the potential of leaks, and improves the efficiency of the system by over 5%.

- **Free Pool Air and Water Heating**
  The REC Series can use the energy collected during dehumidification, and the heat energy generated through system operation, to provide free pool air or water heating depending on the current needs of your indoor pool facilities.

- **Hybrid Heat Recovery**
  The DX refrigeration system works with the 'Cross-Flow' heat exchanger to improve energy recovery through a hybrid solution. Together this powerful system can provide energy recovery efficiencies of over 140%.

### Optimum outside air usage

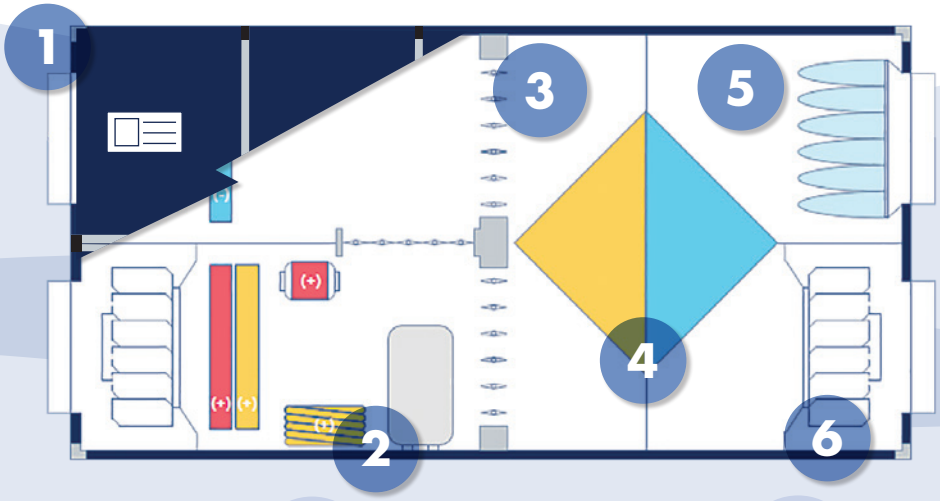
The REC Series maximizes the use of outside air for dehumidification and temperature control. Outside air usage offers the most comfortable conditions and best IAQ for your indoor swimming pool, while working to remove moisture from the air. The 'Lynx' EMCS establishes the proper amount of outside air in order to maintain environmental control and meet the ventilation health code and safety requirements of ASHRAE 62.1.

### Precision Air Flow Control

The REC Series provides the latest in precision airflow control using proven strategies to maintain safe and comfortable conditions. The 'Lynx' EMCS integrates the precision air flow monitoring features with the control software to optimize air recirculation and provide fresh air ventilation to improve the IAQ of your indoor pool environment.

- Maintains proper outdoor air ventilation requirements in compliance with ASHRAE 62.1
- Effective and reliable ventilation control provides increased occupant comfort and safety and improves IAQ.
- Automatic fresh air ventilation management regulated the outside air volume providing quality conditions while reducing costs.
- Improved system lifespan and cost savings through maintaining optimal system operating conditions.
- Customizable airflow configurations are available to provide the best airflow management for your specific needs.

## DURABLE SYSTEM CONSTRUCTION




### Protected Critical Components

Critical components within an environmental control system can be damaged by the indoor pool atmosphere. The REC Series protects these vital components through system design.

- Control components are protected via external location and outdoor weatherproofing.
- PVC and epoxy coatings provide enhanced corrosion protection for critical components.
- Critical component protection greatly improves system reliability and the lifespan of the system.

### Enhanced Compressor Demand Modulation

Multiple, staged, scroll compressor circuits allows the REC Series to offer premium environmental control performance in any operational condition pending your system model and configuration.

- Orbital scroll compressors provide leading energy efficiency.
- Improved motor efficiency increases reliability while reducing energy costs.
- Increased component lifespan and system serviceability.

### Double Wall, Closed Cell Foam Panel Construction

The cabinet construction of the REC Series is specially designed and highly effective for indoor pool facilities.

- Post and panel construction provides a reliable and durable frame for the system.
- Rigid wall panels minimize air loss and infiltration, improving system performance.
- Uses superior light-weight insulation materials, strengthening thermal resistance and sound dampening pending model selection.

### Direct Contact 'Cross-Flow' Heat Recovery System

As the primary system for energy recover, the 'Cross-Flow' heat exchanger is designed to provide reliable and assured energy recovery. As a passive system made up of multiple adjacent channels, it is possible to achieve 140% energy recovery compared to alternative methods.

- Tested and proven PVC and epoxy coatings improve the chlorine corrosion resistance of the heat exchanger.
- Non-mechanical operation improves energy efficiency and system reliability.
- Typical energy recovery results range from 70% - 90%.

### WeatherGuard™ Protection Package

The REC Series is designed for elite weather protection for outdoor installations where your system is susceptible to weather conditions. The WeatherGuard protection package is built into the REC Series to safeguard your system from the elements while extending its operational lifespan.

- Double wall, closed cell foam filled panels are mounted to an anodized extruded aluminum frame.
- For curb mounted, outdoor systems, the curb is fit to the system to prevent leaksage into your building and system.
- A raised and slanted roof prevents standing water and system leaks.
- Advanced insulation and sealants prevent leakage and improves the thermal resistance of the system.

### 'Blue' EC Motor Fan Systems

Featuring 'Blue' EC motor fans systems, the REC Series uses the latest in technology to provide the best performance, control, and protection for your indoor pool facilities and swimmers. EC motor fans provide improved air flow and greater energy savings compared to alternative fan systems.

- Maximized air flow improves indoor pool dehumidification performance.
- Up to date energy efficient product design and technology.
- Safe and effective performance savings on operational and service costs.
- Maintains consistent and comfortable indoor pool conditions.
- Reduces the weight and size of the environmental control system.


## DESIGN DETAILS

The REC Series provides a variety of options to meet any environmental control challenges you face at your facilities. Between refrigeration, cooling, and heating options, the REC Series has the design to protect your facilities and swimmers, while maintaining a comfortable and well controlled environment.

### Flexible, Modular Package

The REC Series is designed to meet your facilities needs, including installation in difficult to reach locations. With a variety of features, the REC Series is the choice for challenging equipment room needs.

- Custom designed to fit into your equipment room layout.
- Multiple options for control, piping, and duct connections.
- Can be shipped in modules for low cost rigging and installation.
- Refrigeration circuits are hermetically sealed and fully tested before leaving the factory.

### Integral ACC, WCC, or Dry-Cooler Option

Integral ACC, WCC, and dry-cooler options are available to supplement the proven performance of the REC Series.

### Multiple Air Heating Options

The REC Series offers several choices for air heating. These options include direct electric resistance heating or specialized hot water coils designed to operate at conditions compatible with the latest high efficiency condensing boilers. The variety of options allow you to select a system that compliments your existing equipment, reducing installation, purchase, and operational costs.

### 'Auto-Fan™': automatic fan control system

The 'Auto-Fan' system matches pool demand to fan performance. The fans are tuned to operate at the minimum speed based on the environmental control needs of the space. This fan system can achieve energy savings of over 60% compared to older, fixed-speed fan arrangements.

## 'LYNX™' ENERGY MANAGEMENT AND CONTROL SYSTEM (EMCS)

The REC Series features the PoolPak 'Lynx' energy management and control system, a leading indoor pool control software and system. The 'Lynx' EMCS utilizes hundreds of tangible and measurable data points to provide complete environmental control and protection for your facility, assets, and swimmers that is more than just humidity control.

The 'Lynx' EMCS provides the software and control systems to maintain a safe and effective environment that is comfortable for swimmers and spectators. The control system also provides features such as building automation system integration, multiple unit networking, and energy efficient system operation.

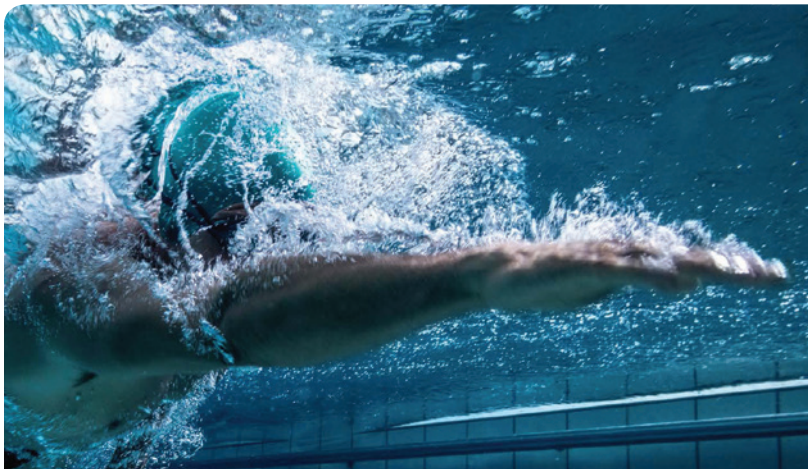
### Remote and Touch-Screen Access and Operation

With remote operational control and energy management, 'Lynx' EMCS provides safe and secure access to your system from anywhere in the world via an Internet connection and standard web browser. On the system, the touch screen control pad provides quick and easy access to system and room set points. This allows you to maintain comfortable conditions within your pool room while still having the protection of an environmental control system.

### Occupancy Modes

Maintaining proper environmental control requires meeting specific needs for cooling, heating and ventilation in a variety of conditions. The 'Lynx' EMCS is able to balance energy and operational cost savings while maintaining a safe and effective environment for your indoor pool facilities.

- **Occupied Mode**
  For regular pool usage. An effective balance of energy savings and environmental control.
- **Event Mode**
  For heavy pool usage. Provides maximum environmental control while accounting for outside air ventilation code requirements and energy costs.
- **Unoccupied Mode**
  For no pool usage. The supply fan output is significantly scaled down, reducing heat and energy losses. This is very effective for overnight as well as during long summer breaks.
- **Pool Cover Mode**
  For when the pool is covered. A reduced temperature set point is utilized to provide comfortable conditions comparable to a room without a pool.



## SERVICE AND SUPPORT

The REC Series is designed for quick and easy service and support. The entire system is built for reliability and has a projected product lifespan of greater than the 15-year industry average.

- The components selected to construct the system are all tested and proven within the aggressive indoor pool atmosphere.
- System design incorporates extra space and simple design to make service fast and effective.
- Improved construction provides continued, reliable and durable, performance—saving you system downtime, service, and maintenance costs.

## MULTIPLE SYSTEM MODELS

There are multiple configurations for the REC Series allowing you to chose the best system for your indoor pool facilities. The two primary models include the RECU and RECA. RECU systems are available for smaller pools (2-12 tons) while RECA systems are built for large pools (6-60 tons). These models are offered with the following configurations:

- HP - Mechanical refrigeration via compressors
- XF - 'Cross-flow' heat recovery device for low cost exhaust air heat recovery in all seasons
- HP XF - Mechanical refrigeration and the 'cross-flow' heat recovery device for low cost exhaust air heat recovery

## PERFORMANCE SUMMARY

| | | RECOSWIM RECU | | | | | | | RECOSWIM RECA | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **RECOSWIM™ REC SERIES** | **TYPE** | **002** | **003** | **004** | **006** | **008** | **010** | **012** | **006** | **008** | **010** | **015** | **020** | **030** | **040** | **050** | **060** |
| **Moisture Removal** | Lb./Hr. | 9.6 | 13.4 | 13.4 | 27.4 | 37.9 | 44.7 | 54.8 | 27.4 | 37.9 | 44.7 | 75.7 | 89.3 | 143.8 | 178.7 | 227.1 | 268 |
| Outside Air: Condition #1 Avg. | Lb./Hr. | 8.5 | 13.4 | 13.4 | 19.7 | 19.7 | 19.7 | 24.6 | 28.1 | 28.1 | 28.1 | 56.1 | 56.1 | 112.3 | 112.3 | 168.4 | 168.4 |
| Outside Air: Condition #2 Avg. | Lb./Hr. | 15.6 | 25.7 | 25.7 | 37.8 | 37.8 | 37.8 | 47.3 | 54 | 54 | 54 | 108.1 | 108.1 | 216.2 | 216.2 | 324.3 | 324.3 |
| **Evaporator Total Capacity** | MBH | 24.1 | 33.7 | 51.2 | 68.6 | 94.9 | 111.9 | 137.2 | 68.8 | 94.9 | 111.9 | 189.7 | 223.8 | 360.3 | 447.7 | 569.1 | 671.5 |
| Compressor Input Power | kW | 2.7 | 3.7 | 5.4 | 7.2 | 9.3 | 11.0 | 14.3 | 7.2 | 9.3 | 11 | 18.6 | 22 | 37.3 | 44 | 55.9 | 66 |
| **Fan Type** | 'Blue EC" backward curved, direct drive, electronically commutated, brushless DC motor | | | | | | | | | | | | | | | | |
| **Air Flow - Recirculation Avg.** | CFM | 1600 | 2750 | 3000 | 4500 | 4500 | 4500 | 5750 | 5000 | 5000 | 5000 | 10000 | 10000 | 20000 | 20000 | 30000 | 30000 |
| Variable Speed Control Range | % | 50 | 50 | 50 | 50 | 50 | 50 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| **Air Flow - Exhaust/Outside Air** | CFM | 1400 | 1900 | 1900 | 2800 | 2800 | 2800 | 3500 | 4000 | 4000 | 4000 | 8000 | 8000 | 16000 | 16000 | 24000 | 24000 |
| Variable Speed Control Range | % | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| **Room Air Heating Potential** | | | | | | | | | | | | | | | | | |
| Recycled Heat | MBH | 33.1 | 46.2 | 69.7 | 93.0 | 126.7 | 149.4 | 186.0 | 93 | 126.7 | 149.4 | 253.3 | 298.9 | 487.5 | 597.8 | 759.9 | 896.7 |
| **Pool Water Heating Potential** | | | | | | | | | | | | | | | | | |
| Recycled Heat | MBH | 33.1 | 46.2 | 69.7 | 93.0 | 126.7 | 149.4 | 186.0 | 93 | 126.7 | 149.4 | 253.3 | 298.9 | 487.5 | 597.8 | 759.9 | 896.7 |

Rated Conditions

Pool Room Air: 82°F/60% R.H.
Outside Air: Condition #1 - 82°F/45% R.H.
Outside Air: Condition #2 - 45°F/100% R.H.

Pool Water: 80°F

## THE POOLPAK PROVEN APPROACH℠

An indoor swimming pool is a very challenging atmosphere for environmental control systems. The chemicals that are used to keep your swimmers safe, can cause a great deal of chemical based corrosion. Swimming pool accessories like railings and diving boards, your indoor swimming pool structure and facilities, and the health of your swimmers and spectators can be damaged or harmed by a poorly controlled indoor pool environment.

With the PoolPak Proven Approach, you never have to worry about a poorly controlled environment. The safety of your swimmers, your building, and your pool accessories can be trusted to PoolPak. The Proven Approach works to provide you with the system and the support to overcome any challenge within your indoor pool environment. The Proven Approach ensures that the system you purchase is proven and tested for the indoor pool environment to provide safe and effective environmental control performance.

## THE INDUSTRY'S LEADING SUPPORT NETWORK

Providing you with a complete solution for your indoor pool environmental control challenges goes beyond temperature and humidity control. The best products need more than just high quality design, parts, and construction. They need a trusted service and support network that is quick and easy to work with, while being an authorized and proven partner. For that reason, PoolPak has invested resources into developing the industry's leading support network.

The best-in-class support and service network has been assembled with the knowledge, skills, and availability to help you overcome any challenge. The network spans service and support for your product before, during, and after the sale. PoolPak is committed to your success, with teams of proven, well-trained, and deeply knowledgeable service and support staff available to work with you to achieve the best, safe and effective results for your indoor pool facilities and swimmers.

- The best single point-of-contact field system and service consultants
- Experienced and dependable product and application installation professionals
- Certified and knowledgeable Factory Authorized Service Technicians™ (F.A.S.T.)
- The powerful and secure Virtual Tech® & 'Lynx'™ web based remote access systems
- Secure and trusted system financing and leasing partners.
- Proven and skilled indoor pool application & design experts.
- The exclusive and effective Build-On-Site™ installation team.
- Tested and certified technical service education programs
- The easy to access and free digital resource & education center
- Live and dependable, factory based sales and support team

With more than 45 years of experience in indoor pool dehumidification equipment manufacturing, PoolPak LLC is the most well-known brand in the industry. Our people and products work daily to improve the quality and comfort of indoor pool environments. PoolPak dehumidification solutions include a variety of heating, ventilation, and air conditioning systems, in addition to an industry-leading PoolPak support network. For more information, please visit **www.PoolPak.com**.

PoolPak®
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