

The FläktGroup® SEMCO™ System Energy Package - Dual Wheel

Quick Reference Guide

- New & Retrofit Projects
- Indoor/Outdoor Mounting
- Pre-cools and dehumidifies in cooling season
- Pre-heats and humidifies in heating season
- Provides a precise humidity controlled environment
- Primary source for summer temperature control

- Primary source for humidity control
- Can be used with central HVAC system
- Provides free re-heat
- Significant reduction in summer tonnage
- Integrated full cooling and re-heating

The FläktGroup SEMCO packaged energy recovery system offers the ultimate performance in the transfer of total energy (both latent and sensible). Pre-engineered and factory assembled, the FläktGroup SEMCO EP series also provides the air handling capability for the building's exhaust and supply air. The system can be selected to precondition outdoor air going to other conventional air handling systems or as an integrated system that provides total space conditioning with the additional heating and cooling options available.

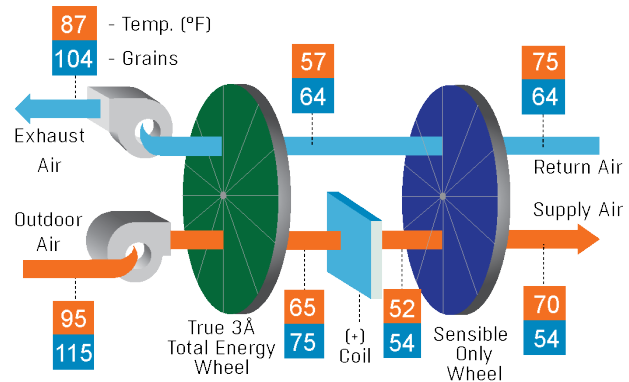
The heart of this system is a technologically advanced True 3Å desiccant wheel. In addition to providing superior performance, the wheel's True 3Å molecular sieve-desiccant coating is selective in what it adsorbs from an exhaust airstream. The desiccant rejects airborne contaminants while it transfers water vapor, thus providing total energy transfer from the exhaust to the supply airstream. Selectivity allows True 3Å to be used in critical applications, including recovery from contaminated airstreams. In the past, energy recovery was avoided or limited to sensible-only energy exchange in applications like these.

The True 3Å wheel uses a fluted media with an aluminum backbone, which is coated with a fast-acting, adsorbent desiccant surface. As the transfer media slowly rotates between the outdoor and exhaust airstreams, the warmer air surrenders its sensible energy to the aluminum. This energy is then shifted to the cooler airstream during the second half of the revolution.

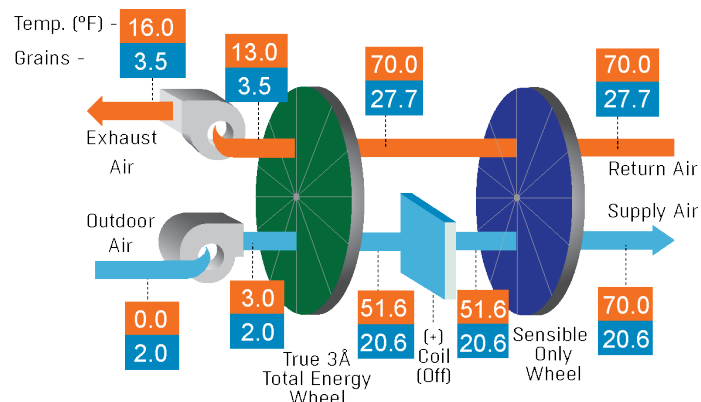
Just as the temperature is captured and released, so is the moisture. True 3Å molecular sieve-desiccant coating has an enormous internal surface area and strong attraction to water vapor. Since the opposing airstreams have different temperatures and moisture contents, the vapor pressure will also be different. This pressure difference is the driving force in the transferring of latent energy.

By using the desiccant coating, True 3Å recovers the moisture from the exhaust airstream to the supply airstream without the airborne pollutants exchanging. This very important and unique feature has been well documented through independent laboratory and field testing. (A copy of the Georgia Tech Research Institute study is available free of charge.)

EPD Cooling Mode



EPD Heating Mode



Key Benefits

- *Standard, catalogued energy wheel products and wheel systems*
- *Independently certified wheel performance in accordance with ASHRAE Standard 84-91 and AHRI Standard 1060 with regard to:*
 - *latent heat transfer efficiency*
 - *sensible heat transfer efficiency*
 - *pressure loss across wheel*
- *Equal latent and sensible heat transfer*
- *Highest performing wheel on the market*
- *Independently certified cross-contamination of less than 0.04%*
- *Field adjustable purge section*
- *Wheel media independently certified to pass NFPA 90A requirements for flame spread and smoke generation based upon ASTM E84 fire test method*
- *Reliable operation*
- *Proven Track Record*
- *Minimal maintenance*
- *Highest engineering expertise in the industry*
- *Suitable for new construction and can be retrofitted to most existing facilities*
- *Precools and dehumidifies outdoor air during the cooling season.*
- *Preheats and pre-humidifies the outdoor air during the heating season*
- *Supplies preconditioned outdoor air to conventional HVAC systems, allowing them to effectively increase outdoor air percentages*
- *Preconditioned outdoor air can be introduced to the return air plenum serving a central HVAC system*
- *It can also be supplied directly to the conditioned space as the system's recovery efficiency ranges between 74 and 85% (in balanced flow operation)*

STANDARD FEATURES

The True 3Å Total Energy Wheel

- Certified total energy recovery performance (sensible and latent) up to 90% efficient
- Patented 3Å molecular sieve-desiccant coating to avoid desiccant cross-contamination
- Wheel faces are coated to ensure long lasting corrosion protection
- Sensible-only wheel is polymer coated to avoid oxidation and future transferring of moisture
- All aluminum, structural spoke system eliminates mechanical fatigue and allows media replacement for wheels greater than size TE3-9
- Non-wearing labyrinth seals

FläktGroup SEMCO Panel System

- Double-wall panel construction (2 inches thick with 18-gauge outer skin) eliminates exposed insulation and the associated risk of bacterial growth
- Double-wall removable panels provided for large internal components
- Gasketed double-wall access doors for all compartments
- Secondary galvanized sheet metal roof standard on units designed for outdoor installation
- Welded cabinet floor with integrated drain pan

Supply and Exhaust Air Fans

- AMCA rated fans sized for quiet and efficient operation, backward curve (up to 16 inches diameter) and airfoil (18 inches diameter and greater)
- Mounted, balanced, tested and internally isolated for vibration
- Motors are NEMA frame, high-efficiency with a 1.15 service factor

Filter Sections

- Filters that are 30% efficient are provided for the outdoor air and return airstreams

Hoods and Dampers

- Low-leakage motorized fresh air damper and gravity exhaust air damper
- Outdoor units are provided with an intake and exhaust hood with bird screen

Electrical Package with Single Point Connection

- All motors wired to starters, disconnects and a main start/stop control center
- Start/stop panel has hand/off/auto positions
- Control center integrates limit switches on damper motors
- 208, 240 or 480 volt single-point connections are available

OPTIONAL FEATURES

Increased Filter Efficiency

- 65, 85 and 95% cartridge filters can be provided in addition to the standard 30% filters.

Reheat Options

- Hot water coil and steam coil (Non-freeze)
- Electric coil, wiring and controls for the electric heater to a separate electrical connection point

Cooling Options

- Chilled water or direct expansion coil

Variable Speed Wheel Control Package

- Digital reading of temperatures
- Proportional heating control
- Automatic summer/winter changeover

Service Contract

- Extended 3 and 5-year service contract available for wheel

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