

HIGH RECOVERY EFFICIENCY

INDOOR AIR QUALITY

FV SERIES

FRESH AIR VENTILATOR
SALES BROCHURE



The function of an Energy Recovery Ventilator (ERV) is to continuously provide the code required quantity of outdoor air during occupancy, with **uncompromised quality and in an energy efficient manner.**

When specifying an HVAC system for a building it is important to choose units that can achieve a high indoor air quality and a comfortable indoor climate. By adding a FläktGroup® SEMCO® Fresh Air Ventilator (FV) energy recovery system to an existing HVAC system, or specifying one for a new building, you can achieve the highest indoor air quality levels and optimal comfort, as well as, a significant reduction in energy use, maximizing the owner's return on investment.

At the heart of every energy recovery system is its wheel. The FV comes equipped with the industry leading Fusion 3Å total enthalpy recovery wheel. The Fusion 3Å recaptures temperature and humidity from the exhaust air-stream without transferring a high percentage of contaminants back to the occupied space. With the highest recovery performance (AHRI certified) and the best recovery efficiency ratios (RER) in the industry, the Fusion 3Å out performs all of the competitor's 3Å molecular sieve wheels.

OPTIMIZING RECOVERY EFFECTIVENESS AND PARASITIC PRESSURE LOSS FOR MAXIMUM ENERGY SAVINGS

Typically, wheels are designed to operate with high air pressure losses, resulting in greater fan electrical inputs and eroding any possibility of energy savings. Incurring high energy costs defeats the purpose of purchasing an energy recovery unit. The FläktGroup SEMCO Fusion 3Å wheel optimizes the parasitic pressure loss across the energy wheel media. The FV is properly designed to operate at a high recovery efficiency with low pressure loss balancing heating and cooling savings with fan energy use.

SELF-CLEANING, FLUTED MEDIA ELIMINATES HIGH PARASITIC FILTER PRESSURE LOSSES

Due to the fact that many ERVs do not receive the care and maintenance they require after installation, engineers typically design ERV units with high efficiency MERV filters in the outdoor and return air-streams,

significantly lowering system operating efficiency due to additional fan energy required to overcome the increasing filter static loss. In return FläktGroup SEMCO has engineered the FV to require minimal maintenance while effectively operating with low efficiency filters without impacting the long term performance of the recovery device. This assures high indoor air quality, top efficiency, and compliance with design codes and standards.

SAFETY FIRST – MINIMIZING FLAME SMOKE GENERATION AND COMPLIANCE WITH NFPA 90A

The Fusion 3Å wheel is designed with an aluminum substrate built to meet smoke and flame ratings, unlike competitor's non-metal energy recovery wheels. This is important when considering the liability to the design team and more importantly, the danger posed to the building occupants, should a fire occur.

SEPARATION OF INTAKE HOOD AND EXHAUST AIR OUTLET

An ERV with the fresh air intake hood adjacent to or on top of the exhaust air outlet will return a substantial amount of the exhausted contaminants back to the occupied space, degrading the quality of the indoor environment. The FV is specifically designed with the outdoor air intake hood on one side of the system, and a high velocity discharge hood on the opposite side to ensure the maximum possible separation of the two air-streams preserving indoor air quality.

ANTIMICROBIAL SURFACES

To prevent the FV from being a breeding ground of microbial activity, it was engineered with the Fusion 3Å energy recovery wheel, which is treated with a desiccant, designed to capture microbes from outdoor air. The inner walls of the FV are also lined with a sound reducing GREENGUARD® Certified antimicrobial foam insulation that is easily cleaned and does not support the growth of bacteria.

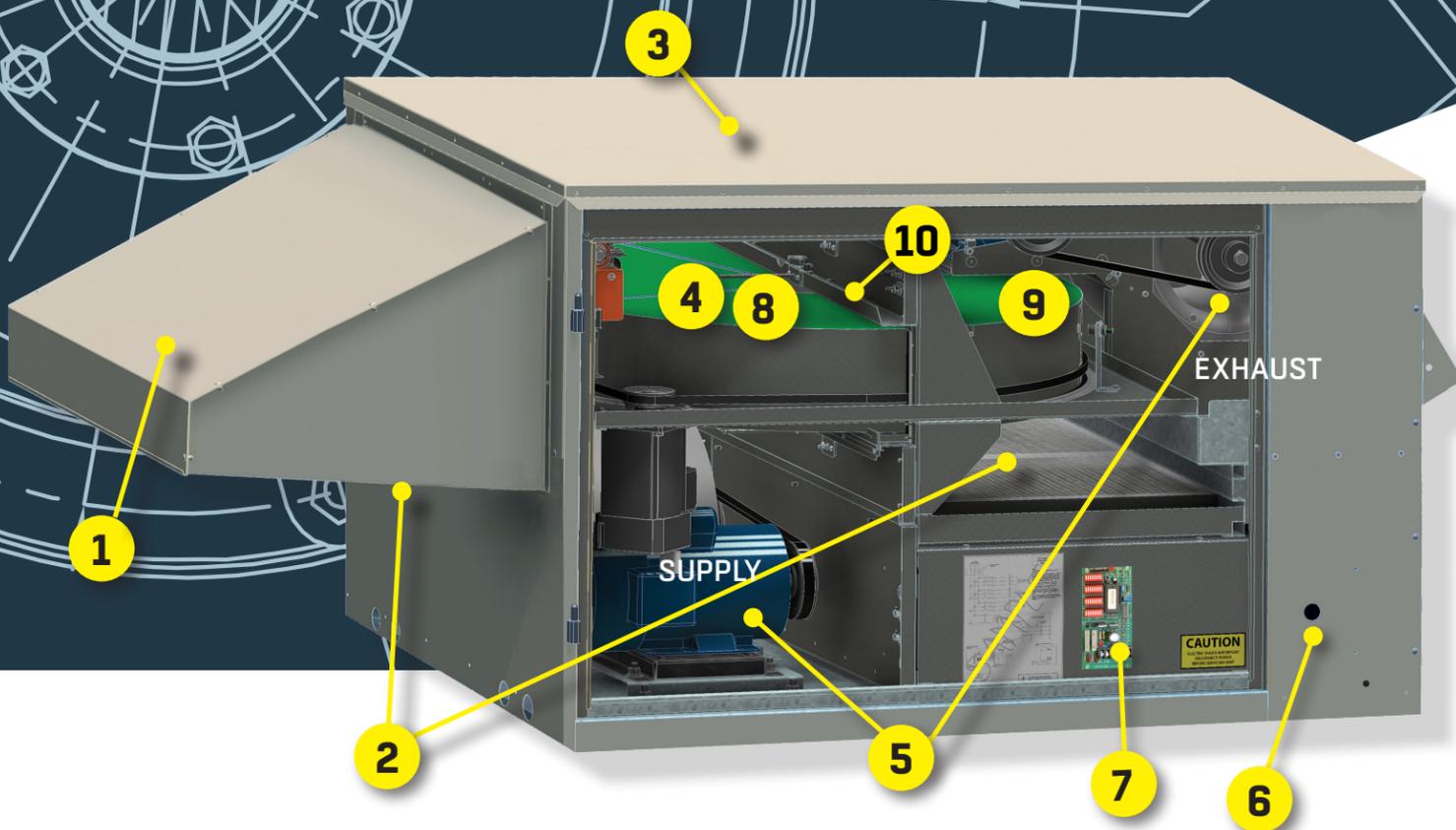
WHEEL DESICCANT AND WHAT SETS 3Å APART

Pioneered by FläktGroup SEMCO, 3Å molecular sieve on the Fusion 3Å wheels was developed for its rapid rate of adsorption and size that limits contaminants.



FEATURES & BENEFITS

EFFICIENCY STANDARD & OPTIONAL UPGRADES



1 HOODS & DAMPERS

- Outdoor airflow damper
- Intake hood with a cleanable filter
- Exhaust air back draft damper

2 FILTER SECTIONS

- Filtration for both the outside air and return air
- 1-inch thick aluminum, washable
- Optional 2" thick pleated type

3 CABINET CONSTRUCTION

- Galvanized steel cabinet construction
- Cabinet is completely insulated
- Hinged doors for easy access
- Floor of the unit built as a pan
- 750 hour salt spray finish (1,000 hr option is available)
- Optional dual wall construction

4 FUSION 3Å TOTAL ENERGY WHEEL

- Long life bearings
- Low leak brush seals
- Structural spoke system
- 3Å molecular sieve media

5 SUPPLY & EXHAUST FANS

- Sized for quiet and efficient operation
- Multiple motor/sheave combination requirements

6 ELECTRICAL PACKAGE WITH SINGLE POINT CONNECTION

- All motors are wired to starters
- Optional variable frequency drive for supply and exhaust fans
- Accepts contact inputs for supply fan, wheel and unit start/stop
- Multiple options on input voltage to units

7 CONTROL PACKAGE OPTIONS

- Stop/jog economizer allows the wheel to be stopped automatically during mild outdoor temperatures with periodic brief rotation to maintain the self-cleaning feature of the heat exchanger.
- Wheel frost protection allows the wheel only to be stopped by the stop/jog economizer at a predetermined outdoor temperature in applications where a preheat coil or thermostat shut-off of the FV unit is not desired.
- Rotation detector sensor can provide an alarm signal indicating failure of the wheel rotation.

OPTIONAL UPGRADES

ELECTRIC PREHEAT

An electric preheat coil can be provided to avoid frosting conditions for installations in cold climates which have high indoor humidity design conditions.

THERMOSTAT FROST PROTECTION

Thermostatic frost control allows the entire FV unit to be turned off at a predetermined temperature when electric preheat is not desired.

8 3Å MOLECULAR SIEVE DESICCANT

The Fusion 3Å wheel incorporates the same high-grade 3Å molecular sieve and binding system used to produce FläktGroup SEMCO's True 3Å wheel, without the proprietary process required to achieve true 3 Ångstrom behavior.

- Reduced contaminant carry-over — equal to better than competitor's wheels marketed as having a 3Å molecular sieve.
- All surfaces are coated with a thick desiccant layer
- A "Ceramic" molecular sieve adds to the corrosion resistance and extends the life of the rotor.

9 LAMINAR FLOW

The Fusion 3Å is designed to induce laminar flow under all conditions. This results in a flow profile, which causes airborne particles to pass freely through the rotor media. as the wheel rotates between two opposing air-streams, the continuous reversal of airflow results in a very efficient "self-cleaning" process. When factoring in the high-velocity airflow the cleaning process is enhanced. As a result, only minimal filtration is required for sustained efficient operation.

10 PURGE SECTION

The purge section is an integral part of the wheel casing design engineered to help the Fusion Å eliminate cross-contaminates. The purge section utilizes the pressure difference between the outdoor and return air-streams to purge the transfer media of contaminants by using clean outdoor air prior to its rotation into the supply air-stream.

FV COIL MODULE

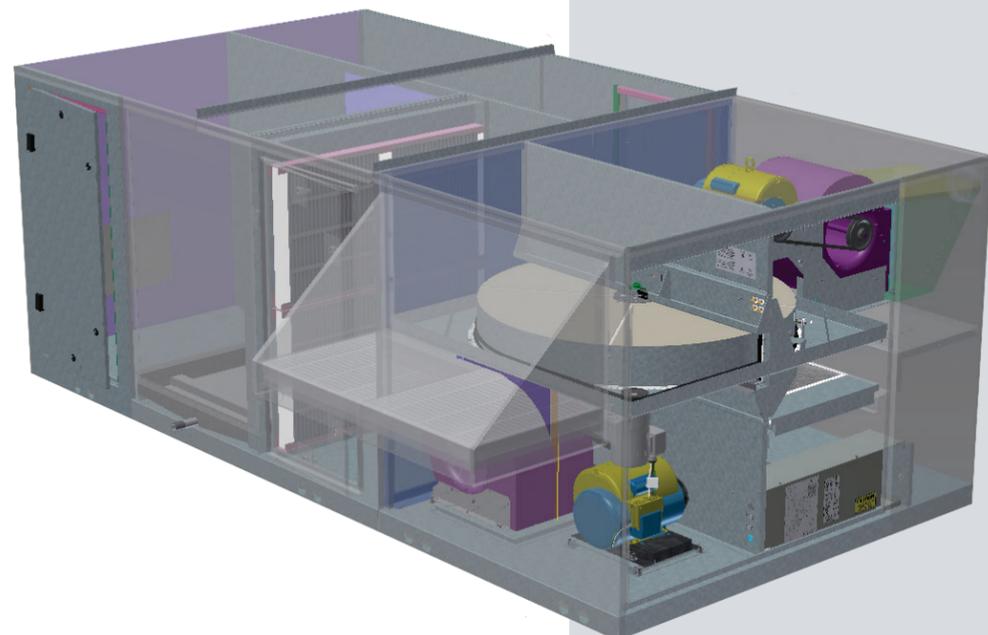
If heating and cooling are a concern an optional FV Coil Module may be purchased. The FV Coil Module is specially engineered to attach directly to the FV pre-conditioner to heat or cool a space.

With the Coil Module several heating and cooling combinations are available. Cooling options include, chilled water or DX coils with the option to configure the number of rows and fins per inch. For heating there is an option of choosing either a hot water or electric coil.

In addition to its heating and cooling components, attaching an FV Coil Module provides an effective solution to ASHRAE Standard 62.1 by increasing the amount of outdoor air supplied to a space by 5-20 cfm/person, while keeping operating costs to a minimum.

FV COIL MODULE FEATURES & BENEFITS

- Airflow capacity from 800 cfm-9,000 cfm
- Indoor and outdoor installation capable
- Horizontal and down flow configurations
- Numerous coil material construction types available
- Galvanized steel cabinet with optional enamel finish
- Constructed to ensure a watertight design
- Unit is insulated to minimize energy loss
- Filters are LEED compliant
- Easy access to all components through the access doors
- Internal piping available for rooftop installations
- Low profile design



EXPRESS SELECT

WEB-BASED SELECTION SOFTWARE

ExpressSelect is a quick, comprehensive, easily accessible selection and sizing tool. ExpressSelect is an entirely web-based program located on the "Rep Login" page of www.semcohvac.com. Once you login and enter the project data, consulting engineers, contractors and manufacturer's representative you should receive a complete FV unit selection in under five minutes. In addition to supplying which FV unit to select for your job, ExpressSelect will also provide the scope, performance, electrical requirements and dimensions you need to make sure you are selecting the correct unit for your job.

EXPRESS SELECT FV

SUBMITTAL

Submittals are complete and easily generated. Based on inputs for selection, there is no need to re-enter information.

The screenshots show the software's output sections. The 'FV Output Section' includes project details, unit specifications, and a list of unit options with their respective performance metrics. The 'FV Energy Analysis Section' provides a detailed breakdown of energy savings, including cooling and heating energy savings, and a net annual energy savings calculation.

This screenshot displays the physical dimensions and weight of the selected FV unit. It includes a table with columns for dimensions (A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z) and weight, along with a diagram of the unit's configuration.

INPUT SECTION

ExpressSelect picks the best possible FV unit for the job, based on the data that was inputted.

This screenshot shows the input section of the software, where users can configure various parameters such as return air filters, coil configurations, and unit selection criteria. It includes a table for 'Choose from List of Viable Unit Options' and a 'Unit Selected for Analysis' field.

FV ENERGY ANALYSIS SECTION

ExpressSelect can determine your true net annual energy savings, taking into consideration the selected FV unit's efficiency. This results in higher RER values and a more efficient system overall.

This screenshot displays the 'FV Energy Analysis Section' with a table of energy savings. The table includes columns for 'Energy Savings', 'Dollars/Value', and 'Cooling/Heating'. It shows a net annual energy savings of \$2,651.



SCHEDULING

ExpressSelect creates schedules and allows you to easily edit and import job documents.

This screenshot shows a 'Schedule' table with columns for 'Unit', 'Design', 'Model', 'Location', 'Tag #', 'Fan Data', 'Wheel Data', and 'Unit Information'. It includes a table with columns for 'Supply Airflow', 'Return Airflow', and 'Exhaust'.

EXCELLENCE IN SOLUTIONS

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FläktGroup® SEMCO® delivers smart, energy-efficient, air-quality solutions to support every building application. We offer our customers innovative technologies, high-quality products and outstanding performance supported by more than fifty years of accumulated industry experience. The broadest offering on the market and a strong market presence in 65 countries worldwide guarantees that we are always by your side, ready to deliver: Excellence in Solutions.

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