FläktGroup®
SEMCO

SPECIALIZED
HEALTHY
AIR SOLUTIONS

ENERGY EFFICIENT

AIR QUALITY

ELITE SERIES

ENERGY RECOVERY SYSTEM
SALES BROCHURE

THE ELITE

EXTREME PERFORMANCE IN TOTAL ENERGY TRANSFER

The FläktGroup SEMCO Elite Series pre-engineered and factory assembled energy recovery unit (ERU), offers the ultimate in the equally-balanced transfer of both latent and sensible performance. As with all of the FläktGroup SEMCO energy recovery systems, the Elite is capable of treating a building's exhaust and incoming air supply. The Elite system may be used as an outdoor air pre-conditioner for an existing conventional air handling system, or as part of an integrated system, which provides total space conditioning and humidity control — humidity control that competitors struggle to deliver.

At the heart of the Elite, lies the industry-leading, FläktGroup SEMCO Unitary Wheel Cassette (UWC). These energy recovery wheels provide exceptional indoor air quality by eliminating 96% of surface viruses and bacterias through the wheels' antimicrobial, antistick and anticorrosion media properties — keeping people safe and healthy. The UWC line offers the highest performing wheels, the highest latent and sensible transfer efficiency media in its class.

The UWC line is designed and built to have a long, reliable, and relatively maintenance-free life. The UWC can easily be replaced in a few minutes. It is AHRI 1060 certified, which verifies the cassettes will perform accurately and consistently, in accordance with ASHRAE Standard 84. In addition to ASHRAE Standard 84, the UWC is independently certified to pass NFPA 90 requirements for flame spread and smoke generation based upon ASTM E84 fire test method.

The Elite Series also includes world-class performance electronically commutated fans (EC fans). The Elite EC fans include high-precision CFD designed hollow aerofoil profiled blades as well as an innovative mix-flow impeller design which improves the airflow pattern for a more natural and efficient flow—assuring minimum turbulence, maximum dynamic pressure and the lowest possible noise level. These fans are designed to minimize noise and optimize system efficiency which allows the Elite to provide superior energy savings and cost.

Included in all Elite Series units are light weight, dual-wall foam panels which provide a clean aesthetic, exceptional insulation and superior air leakage prevention. A plug-and-play controls system allows for a turnkey solution to save you money on installation costs —minimizing time and difficulty of installation. It will provide important communication to your building automation system to allow you to control the environment.

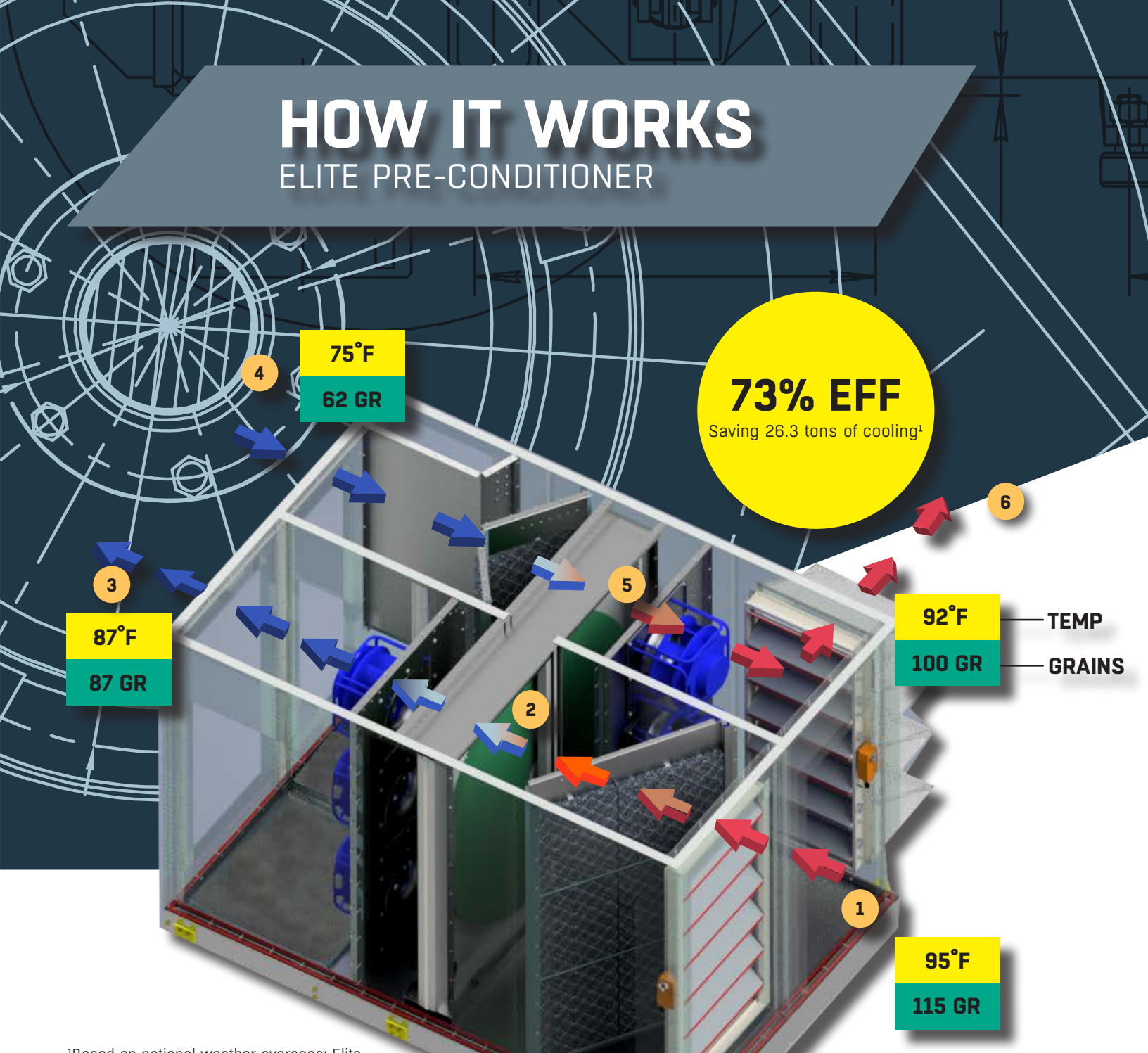
The Elite Series delivers high-quality, outstanding performance you can rely on for a wide breadth of applications.

- Certified total energy recovery performance — sensible & latent — up to 83% effectiveness.*
- Exceptional indoor air quality which keeps people safe and healthy — 96% effective at eliminating surface viruses and bacterias.
- 8 Airflow capacity ranges from 3,000 SCFM to 15,000 SCFM

***Most common selections utilizing moderate face velocities would provide 75% efficiency.**

HOW IT WORKS

ELITE PRE-CONDITIONER



[1]Based on national weather averages; Elite Series versus 11,000 CFM non-energy recovery units.

ELITE - COOLING SEASON

1 - Hot and humid outside air is drawn in.

2 - Fresh air is blown in through the slowly rotating UWC wheel. The desiccant - coated fluted media captures heat and moisture from the outdoor side and transfers it to the exhaust side.

3 - The cooled and dehumidified air enters the HVAC system or is delivered directly to the occupied space.

4 - Cool, dry return air that is exhausted from the building enters the Elite Series Series Energy Recovery System.

5 - As return air passes through the UWC wheel, it removes the heat and humidity captured by the wheel from the fresh air stream.

6 - Warm, humidified exhaust air is blown out.

73% EFF

Saving $68,944 per year for 5,000 hrs. of heating at $0.10/kW/hr.[1]

[1]Based on national weather averages; Elite Series versus 11,000 CFM non-energy recovery units.

ELITE - HEATING SEASON

1 - Cold and dry outside air is drawn in.

2 - Fresh air is blown in through the slowly rotating UWC wheel. The desiccant - coated fluted media captures heat and moisture from the return side and transfers it to the supply side.

3 - The warmed and humidified air enters the HVAC system or is delivered directly to the occupied space.

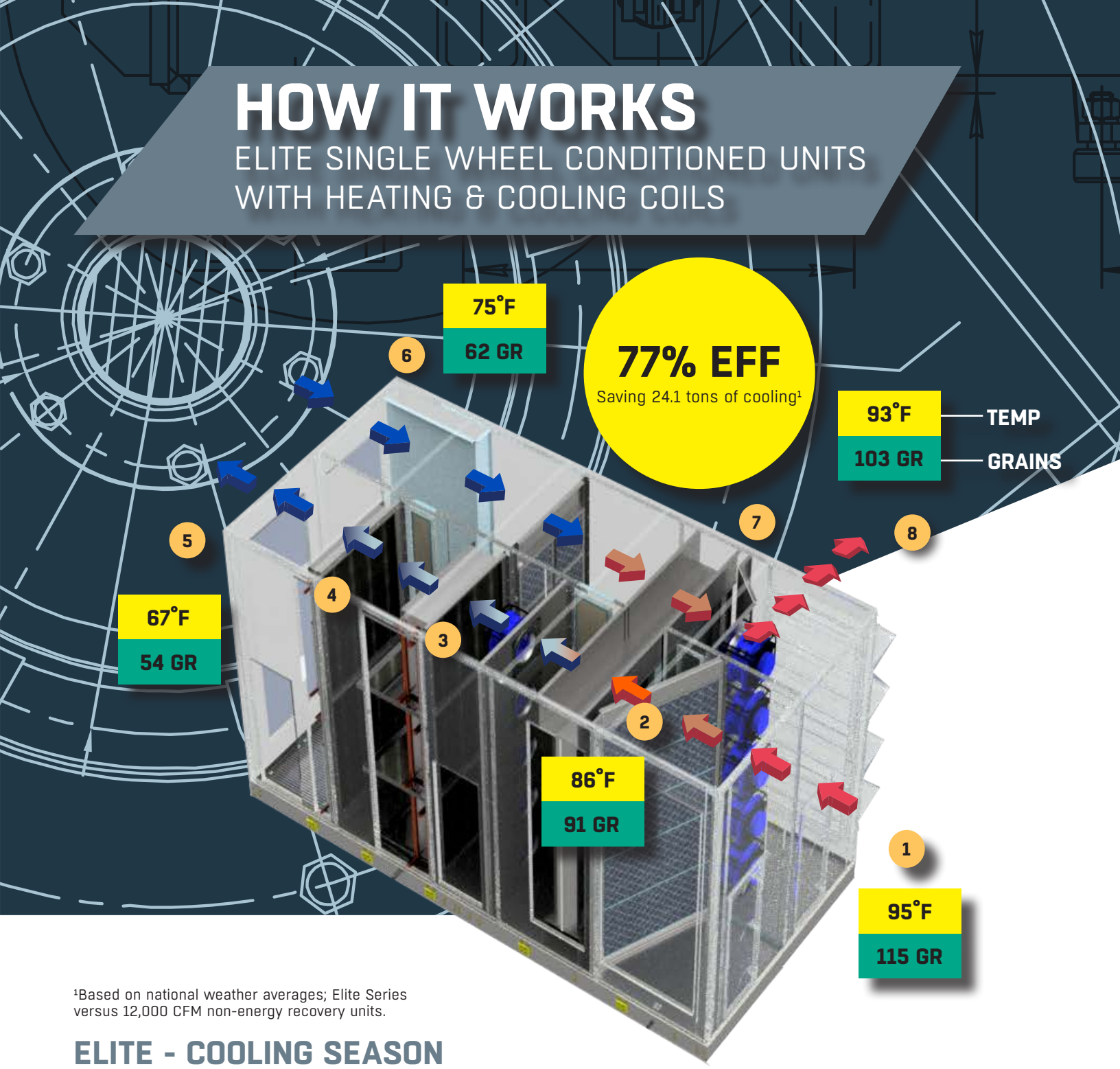
4 - Warm, humid return air that is exhausted from the building enters the Elite Series Energy Recovery System.

5 - As return air passes through the UWC wheel, it captures the heat and moisture to be transferred back to the supply air

6 - Cool, dry exhaust air is blown out.

HOW IT WORKS

ELITE SINGLE WHEEL CONDITIONED UNITS WITH HEATING & COOLING COILS



¹Based on national weather averages; Elite Series versus 12,000 CFM non-energy recovery units.

ELITE - COOLING SEASON

1 - Hot and humid outside air is drawn in.

2 - Fresh air is blown in through the slowly rotating UWC wheel. The desiccant - coated fluted media captures heat and moisture from the outdoor side and transfers it to the exhaust side.

3 - The supply air passes through cooling coils to cool air further

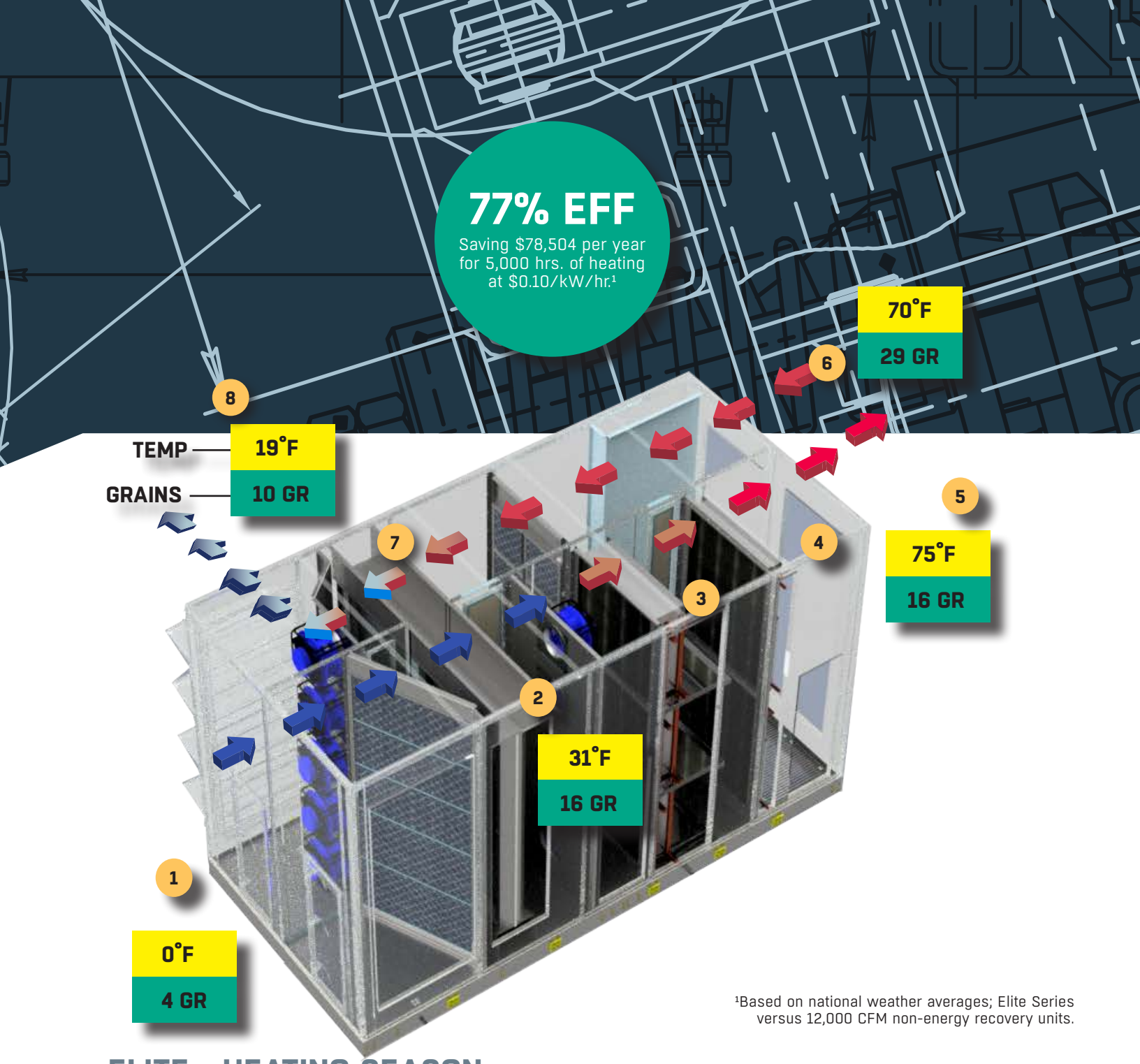
4 - Cooled supply air passes through the heating coils to warm it to a comfortable temperature.

5 - The conditioned air is delivered directly to the occupied space.

6 - Cool, dry return air that is exhausted from the building enters the Elite Series Energy Recovery System.

7 - As return air passes through the UWC wheel, it removes the heat and humidity captured by the wheel from the fresh air stream.

8 - Warm, humidified exhaust air is blown out.



[1]Based on national weather averages; Elite Series versus 12,000 CFM non-energy recovery units.

ELITE - HEATING SEASON

1 - Cold and dry outside air is drawn in.

2 - Fresh air is blown in through the slowly rotating UWC wheel. The desiccant - coated fluted media captures heat and moisture from the return side and transfers it to the supply side.

3 - Supply air passes by the turned off cooling coils.

4 - Supply air passes through the heating coils to warm the air further.

5 - The conditioned air is delivered directly to the occupied space.

6 - Warm, humid return air that is exhausted from the building enters the Elite Series Energy Recovery System.

7 - As return air passes through the UWC wheel, it captures the heat and moisture to be transferred back to the supply air

8 - Cool, dry exhaust air is blown out.

SELECTING THE RIGHT UNIT

MATCHING TECHNOLOGY WITH APPLICATIONS

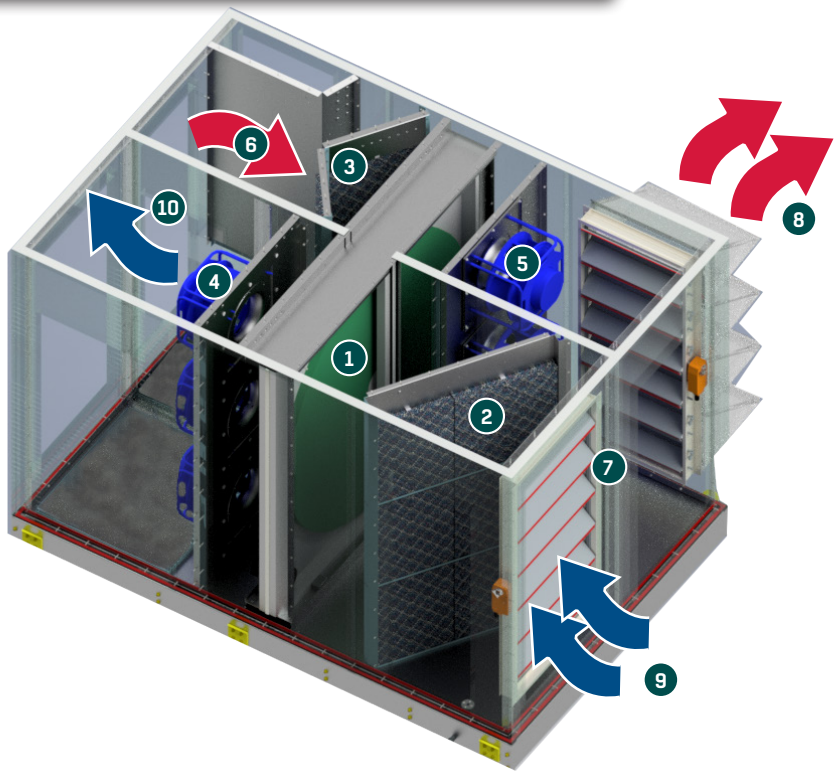
REQUIREMENT	ELT-P	ELT-C	ELT-H	ELT-CH	ELT-HC	ELT-CGB
NEW & RETROFIT PROJECTS	X	X	X	X	X	X
OUTDOOR MOUNTING	X	X	X	X	X	X
PRE-COOLS & DEHUMIDIFIES IN COOLING SEASON	X	X	X	X	X	X
PRE-HEATS & HUMIDIFIES DURING HEATING SEASON	X	X	X	X	X	X
CAN BE USED WITH A CENTRAL HVAC SYSTEM	X	X	X	X	X	X
APPLICATIONS NEEDING A HIGH % OF OUTDOOR AIR	–	X	X	X	X	X
APPLICATIONS NEEDING 100% OUTDOOR AIR	–	X	X	X	X	X
PRIMARY SOURCE FOR WINTER TEMPERATURE CONTROL	–	–	X	X	X	X
PRIMARY SOURCE FOR SUMMER TEMPERATURE CONTROL	–	X	–	X	–	X
PRIMARY SOURCE FOR CONTROLLING SUPPLY AIR HUMIDITY	–	X	–	X	X	X
VARIOUS POST HEATING SOURCES AVAILABLE	–	–	X	X	–	X
VARIOUS POST COOLING SOURCES AVAILABLE	–	X	–	–	X	–
CONTROL LATENT LOADS	–	–	–	X	–	X
INTEGRATED FULL COOLING AND RE-HEATING	–	–	–	X	–	X

COMPARISONS
ELITE SINGLE WHEEL UNITS

ELITE PRE-CONDITIONER
ELT-P

Engineered to balance and transfer latent and sensible heat for both a building's exhaust and incoming air, the Elite Pre-Conditioner is a perfect add on to any existing conventional air handling system. Dual-walled and designed around FläktGroup SEMCO energy recovery wheels. The Elite supply and exhaust EC fans have rear-curved motor impellers with vaneless diffusers for high efficiency and favorable acoustics. All units come equipped with outdoor air and return air filtration and have the option for a full electrical controls package with a single-point electrical connection.

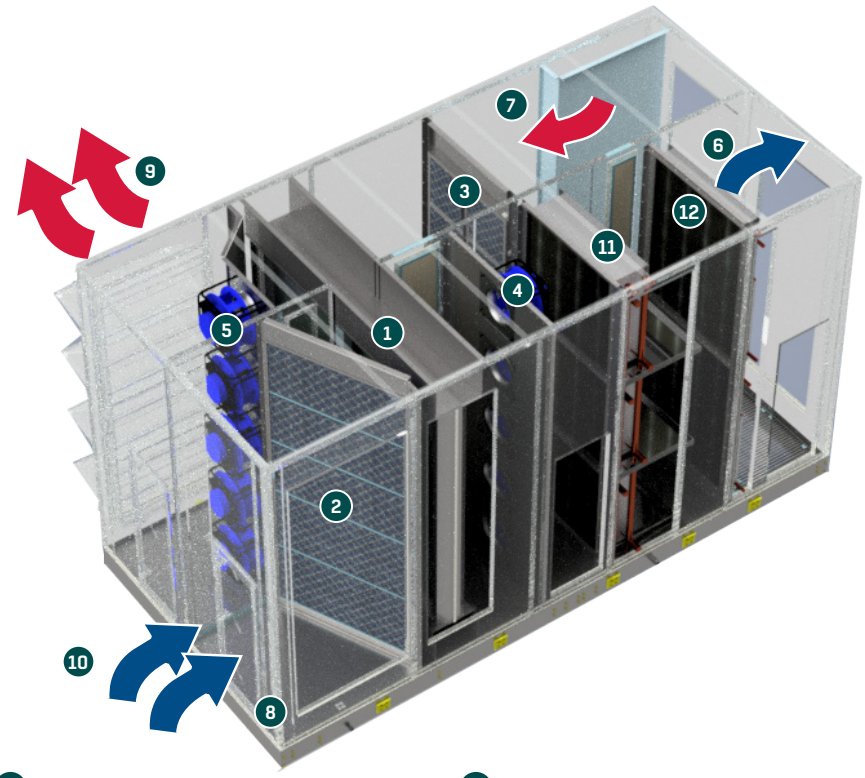
- Pre-cools and dehumidifies outdoor air during cooling season.
- Pre-heats and pre-humidifies the outdoor air during the heating season.
- Supplies pre-conditioned outdoor air to conventional HVAC systems, allowing them to effectively increase outdoor air percentages.
- Pre-conditioned outdoor air can be introduced to the return air plenum serving a central HVAC system.
- It can also be supplied directly to the conditioned space, since the system's recovery efficiency ranges between 74-85% (in balanced flow operation).



1. **ENTHALPY WHEEL** - a rotating, wheel-shaped heat transfer device that exchanges sensible (temperature) and latent (water vapor) energy from one air-stream to another.
2. **SUPPLY AIR FILTER BANK** - 2" MERV 8 or MERV 13 air filters.
3. **RETURN AIR FILTER BANK** - 2" MERV 8 or MERV 13 air filters.
4. **SUPPLY AIR EC FANS** - high efficiency, single-sided intake EC fans equipped with rear-curved motor impellers and vaneless diffusers.
5. **EXHAUST AIR EC FANS** - high efficiency, single-sided intake EC fans equipped with rear-curved motor impellers and vaneless diffusers.
6. **RETURN AIR** - air from the indoor space that is pulled through the energy recovery wheel. Once it passes through the wheel it is referred to as exhaust air.
7. **OUTSIDE AIR DAMPER** - a set of blades used to regulate the outside air flow into the unit.
8. **EXHAUST AIR** - the air from indoors that passed through the energy recovery wheel and is being ducted outdoors.
9. **OUTDOOR AIR** - the fresh outside air being drawn in through the energy recovery wheel. Once it passes through the wheel it becomes the supply air.
10. **SUPPLY AIR** - Air provided to the indoor space. Outside air that passes through the energy recovery wheel becomes supply air.

ELITE CONDITIONED UNITS

ELT-C, ELT-H, ELT-CH, ELT-HC, ELT-CG



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9. **EXHAUST AIR** - the air from indoors that passed through the energy recovery wheel and is being ducted outdoors.

10. **OUTDOOR AIR** - the fresh outside air being drawn in through the energy recovery wheel. Once it passes through the wheel it becomes the supply air.

11. **COOLING COILS -** chilled water, DX cooling coils, allowing for a full integration of cooling options.

12. **HEATING COILS -** hot water coil or indirect gas burner, which allows for a full integration of heating options.

The Elite single-wheeled conditioned units are engineered to balance latent and sensible heat for both a building's exhaust and incoming air supply, while also integrating full heating and cooling options. These Elite units may be used in applications as a primary source for temperature and/or humidity control when 100% of the incoming outdoor is required. Some examples of these applications are schools, office buildings, shops and manufacturing areas. The conditioned units may also serve as pre-conditioners for applications where additional post heating or cooling is needed to supplement the outdoor air being directly supplied to the space.

While all of the Elite conditioned units are adept at handling humidity, in more humid environments the ELT-CH is recommended, due to its abilities to handle latent loads by over-drying the outdoor air with the cooling coil and then reheating the air to a temperature that is comfortable for the occupants.

- Supplies pre-conditioned outdoor air with supplemental heating and cooling to conventional HVAC systems
- Pre-conditioned outdoor air can be introduced to the return air plenum serving a central HVAC system.
- These units can also be supplied directly to a space with it's fully integrated heating and cooling options.
- Cooling options include either chilled water or DX cooling coils, fins per inch and row options can be configured for each unit.
- Heating options include either hot water coils or an indirect gas burner.

FEATURES & BENEFITS

EFFICIENCY STANDARD WITH OPTIONAL UPGRADES

FEATURES & BENEFITS

THE UNITARY WHEEL CASSETTE SERIES

- Uniquely designed fluted media generates highest certified heat transfer efficiency and simultaneously reduces pressure loss parameters.
- Independently certified wheel performance in accordance with ASHRAE Standard 84 and AHRI Standard 1060.
- Media crafted from aluminum coated with a corrosion resistant desiccant. Coating extends the life of the aluminum media substrate and enhances its structural integrity, hybrid brush/barrier perimeter and face contact seals to minimize air leakage and wheel bypass.
- Media supported by light weight aluminum extrusions (hubs, spokes and rims) — combining strength with precision.
- Easy to maintain with a slide out cassette.

EXTENDED SERVICE WARRANTY

- 3 and 5 year wheel product warranty options.

STANDARD CONTROL PACKAGE

- Variable speed wheel control
- Frost protection via proportional heating control
- Touch-pad display
- Airflow measurement
- Constant volume airflow control
- Filter monitoring
- Wheel rotation monitoring
- Fan fault monitoring
- BACnet communications

OPTIONS

- Supply duct pressure control
- Electric preheat for wheel frost control

SEMCO IS RENOWNED FOR PERFORMING AT OR **ABOVE** PUBLISHED **PERFORMANCE** LEVELS **EVERY TIME.***

*Within the accuracy limits of field measured performance.

ELECTRICAL PACKAGE

- Single point connection — *except electric preheat*
- Integrated, easily accessible control and electrical panels with non-fused disconnect.
- 480V/3PH/60HZ single-point connections available — *except electric preheat*

SMOKE & FLAME SPREAD SAFETY RATINGS

- Wheel media independently certified to pass NFA 90A requirements for flame spread and smoke generation based upon ASTM E84 fire test method.

SUPPLY & EXHAUST AIR EC FANS

- Mounted, balanced, tested and internally isolated for vibration.
- 0-10 VDC variable speed control

FILTER SECTIONS

- Filters that are MERV 8 efficient are standard provided for outdoor and return air streams. MERV 13 are optional.

SEMCO PANEL SYSTEMS

- Dual-wall foam panel construction (2 inches thick) eliminates exposed insulation (R-13) and the associated risk of bacterial growth.
- Dual-wall removable panels provided for large internal components.
- Gasketed dual-wall access doors for compartments.
- Secondary roof of continuous standing-seam panels standard on units designed for outdoor installation.

HOODS & DAMPERS

- Low-leakage motorized fresh air damper and exhaust air damper.
- Outdoor units are provided with intake and exhaust hoods with bird screen.

GAS BURNER

- Allows the unit to treat supply air with odorless and smokeless flames.

COILS

- Fully integrated cooling option with either chilled water or DX coils.
- Fully integrated heating option with hot water.

ADDITIONAL PRODUCTS

NEUTON™ CONTROLLED CHILLED BEAM PUMP MODULE

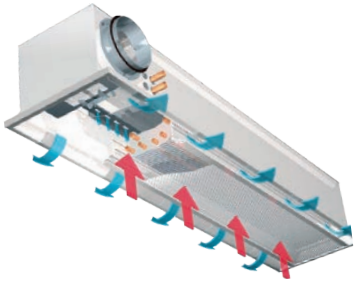
- State-of-the-art active condensation control effectively eliminates chilled beam condensation concerns.
- Reduces cost of a chilled beam installation by 30% or more by utilizing smaller pipe diameters, fittings & fewer feet of pipe.
- Uses a fraction of the energy used by traditional pump systems.
- Virtually eliminates field control requirements at the zone level.

JUNO IQHC ACTIVE CHILLED BEAM

- Industry best capacity to energy consumption ratio
- Utilizes the lowest air & water pressure to enhance the overall energy benefit of chilled beams
- Universal duct & water connections for easy installation
- Superior indoor air quality & energy efficiency.

LYRA II CASSETTE CHILLED BEAM

- Pi (Pressure Independent) Airflow control provides built-in flexibility
- Very low noise level combined with high flexibility and high cooling capacity
- Fastening brackets make for easy installation - only 1 person needed to install
- Diffuses air in 4 directions to provide high cooling capacity and high level of comfort



AURORA IQSA CHILLED BEAM

- Supply air beams are designed to manage high cooling effects
- Equipped with adjusting rails, comfort control, for the adjustment of air flow, cooling effect and flow pattern
- Capacity & flow directions easily adjustable
- Fastening brackets for quick & easy mounting - lift up - snap on

CHILLED BEAM WITH ACTUATED SLOTS (WEGA II / NOVA II)

- Motorized Energy Control
- Flow pattern control to adapt to the frequent changes of the modern office
- Control and regulation equipment
- Heating function: water coil or electrical coils
- Lighting

ELARA QPVA PASSIVE CHILLED BEAM

- Provides convective cooling to a a space without requiring air duct connection
- Designed for pendant or ceiling grid mount
- Lengths available include 4, 6, 8, 10 & 12 feet
- Utilized alone, or as a supplement to active chilled beams to reduce primary air required in a high sensible load room

FläktGroup SEMCO

EXCELLENCE IN SOLUTIONS

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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To learn more about FläktGroup SEMCO offerings and to contact your nearest representative please visit

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