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## THE ISOLATOR

**Hello September! As the city shakes off the summer lull and everyone gets back into the rhythm, KGC is already a step ahead—delivering comfort where it counts.**

While Dubai's streets buzz with energy, we've been busy on rooftops and risers, making sure fresh air flows right where it should. Our project spotlight this month? The delivery of a brand-new FAHU for a Residential Building in Dubai—a system built to keep homes breezy, healthy, and efficient.

In our tech corner, we're unpacking the principles and advantages of the FAHU with Heat Recovery Wheel and DX Condensing Unit—a combo that saves energy, cuts load, and keeps air quality at its best. And the product highlight? The powerhouse FAHU + DX Outdoor Condensing Units—engineered for efficiency, durability, and always ready for the region's toughest climates.

So grab your coffee, dive in, and enjoy this September issue—where projects, products, and a passion for fresh air all come together. At Kinetics, we don't just move air—we make it smarter, cleaner, and better for every space we serve.



## Residential Building, Al Muraqqabat, Dubai

KGC continues to reinforce its commitment to innovative HVAC solutions with supply of DX Type Fresh Air Handling Units (FAHUs) with Heat Recovery Wheel for a Residential Building located in Al Muraqqabat, Dubai UAE. Our advanced systems are designed to ensure superior indoor air quality, precise humidity control, and optimized energy efficiency—supporting healthier and more comfortable living environments.

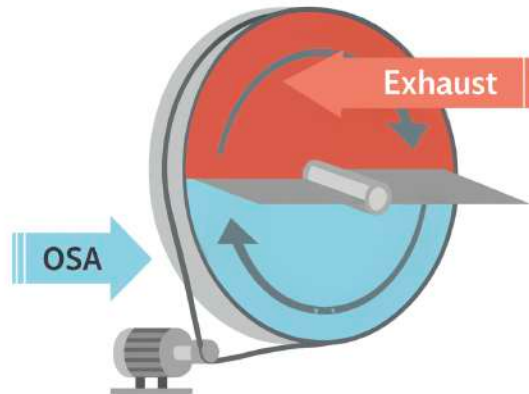
This project reflects KGC's dedication to enhancing residential living with state-of-the-art HVAC solutions. By integrating high-performance equipment, we aim to provide residents with unparalleled comfort, reliable operation, and energy-conscious performance tailored to modern lifestyles.

## Technical Discussion: Principles and Advantages of FAHU with Heat Recovery Wheel and DX Condensing Units

Efficient ventilation is critical in residential buildings within hot and humid climates such as the UAE. Direct Expansion (DX) Fresh Air Handling Unit (FAHU) equipped with a rotary heat recovery wheel system is designed to ensure continuous supply of fresh, filtered, conditioned air while achieving significant energy savings by recovering sensible and latent energy from exhaust air streams.

### System Overview

The DX FAHU is engineered to introduce outdoor air, filter and condition it, and distribute it through the duct network to occupied spaces. To reduce energy consumption, a rotary heat recovery wheel precools or preheats the fresh air using the building's exhaust air stream, minimizing the load on the DX cooling coil.



ROTARY HEAT RECOVERY WHEEL

## Working Principle

1. **Air Intake** – Outdoor air enters via weather louvres and motorized dampers, which regulate airflow and prevent infiltration when the unit is not in operation.
2. **Filtration** – Multi-stage filters (pre-filters and fine filters) eliminate dust and contaminants, ensuring clean air supply.
3. **Heat Recovery** – The rotary wheel transfers sensible and latent energy between exhaust and intake air. In summer, hot air is precooled, reducing compressor energy use. In winter, cold air is preheated, lowering heating demand. Typical energy savings range from **20–30%**.
4. **DX Cooling & Dehumidification** – Refrigerant expands directly within coil tubes, removing heat and condensing excess moisture. This ensures air is delivered at the required temperature and humidity.
5. **Heating / Reheating** – Optional electric or hot water coils can reheat supply air for precise temperature control.
6. **Air Movement & Distribution** – High-efficiency fans maintain the required static pressure, supplying conditioned air across the duct network to all occupied zones.

## Technical Advantages

- **Energy Efficiency** – Reduced compressor and heater demand through effective sensible and latent energy recovery.
- **Improved Indoor Air Quality** – Multi-stage filtration and humidity control enhance occupant health and comfort.
- **Operational Reliability** – Robust DX cooling with long-life fans ensures stable performance across varying ambient conditions.
- **Climate Suitability** – Optimized for hot and humid regions where cooling loads are dominant.

The DX FAHU with rotary heat recovery wheel represents a balanced solution between energy efficiency and indoor air quality. By recovering up to one-third of otherwise wasted energy while continuously delivering clean and dehumidified air, the system addresses both sustainability targets and comfort requirements.



# PRODUCT HIGHLIGHT: FAHU + DX Outdoor Condensing Units

Engineered for performance in demanding climates, the FAHU + DX Outdoor Condensing Units deliver a perfect balance of fresh air quality, energy efficiency, and robust cooling capacity. With integrated heat recovery, advanced filtration, and durable construction, the system ensures reliable comfort while driving down operating costs.

## Smart Energy Recovery

At the core of the system is a rotary heat recovery wheel, which achieves up to 72.4% efficiency in balanced flow conditions and provides both sensible and latent energy recovery. With a recovery capacity of 29.7 kW sensible and 42.7 kW total, the wheel significantly reduces compressor load while maintaining leakage below 3%.

## Clean Air Delivery

The system can supply 14,544 m<sup>3</sup>/h of fresh air and exhausts 12,175 m<sup>3</sup>/h, with two-stage filtration comprising G4 pre-filters (ISO coarse 80%) and F7 bag filters (ePM2.5 65%). This ensures only clean, healthy air reaches the occupied spaces, with pressure drops managed between 40 and 200 Pa for efficiency.

## Efficient Air Movement

High-efficiency plug fans power the airflow, with a 7.5 kW supply fan and a 4.0 kW exhaust fan both driven by VFDs, delivering clean specific fan power values of 1.76 and 1.17 respectively.

## Precise Cooling and Dehumidification

Air treatment is managed through a DX cooling coil paired with a horse-shoe heat pipe, providing a sensible cooling load of up to 143.7 kW.

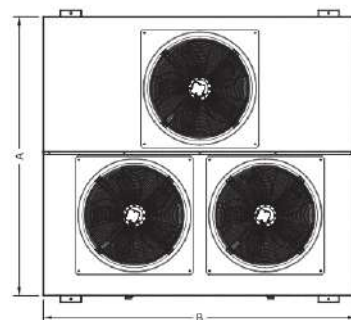
## Reliable Outdoor Condensing Units

The condensing section delivers 88.31 kW of gross cooling capacity with dual ZR137 scroll compressors operating on R-410C, supported by three axial fans and a four-row condenser coil. The system is designed for reliable operation in 46 °C ambient conditions.

## Robust Construction and Acoustics

The FAHU is constructed with 50 mm PIR insulated, thermal break panels and supplied in modular factory-split sections, weighing approximately 1,145 kg. Internal lighting and viewports simplify inspection and maintenance, while acoustic levels remain between 73 and 75 dB(A) at one meter.

The **FAHU + DX Outdoor Condensing Unit system** offers a complete solution that unites energy recovery, advanced filtration, precise cooling and dehumidification, and robust construction. It ensures clean, conditioned air delivery while significantly lowering operating costs through energy savings, making it an ideal choice for projects demanding both occupant comfort and sustainable performance.



FAHU + DX Outdoor Condensing Units



# KINETICS YOUTUBE & TESTIMONIALS

Kinetics Group proudly presents our specialized Engineering Services—where expertise in seismic engineering, pipe stress analysis & support design, and acoustic engineering come together to deliver reliable and sustainable project solutions.

These services unite advanced technology with practical experience to ensure safety, efficiency, and performance across complex industries worldwide.

It's a reflection of our commitment—where innovation, reliability, and expertise go hand in hand. It's smarter with Kinetics!

▶ YouTube Channel: <https://lnkd.in/dtwpqwq>

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YouTube Video Link: <https://www.youtube.com/watch?v=s0YW6KH6UIk>



"Kinetics is proactive in addressing our concerns. We had a seamless process from scheduling to issue resolution."

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Sobha Constructions

"Kinetics provided responsive support, clear documentation, and a positive overall experience."

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Sajaya Contracting

"The Kinetics Team showed dedication in addressing all site matters effectively."

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SKR Building Contracting LLC

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"Excellent service from Kinetics! They understood our project needs and provided effective, high-quality solutions."

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"Excellent collaboration and clear communication throughout with Kinetics."

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James L Williams Middle East

"Kinetics proved to be a dependable partner, delivering our items in perfect condition, right on time, and making coordination effortlessly easy."

**ENGR. MOHAMED ELSHEBLY**  
M/s. Mawarid Al Sharq Electromechanical Contracting Co LLC

"All site concerns were resolved efficiently, thanks to Kinetics' capable team."

**AQUEEL AHMED**  
Ancient Builders Construction LLC

