



Thermal Management
Innovation
an Eren Groupe Company

ELH

Extreme Low Humidity Environment Control HVACD



Thermal Management Solutions For
the Lithium-ion Industry (GIGA Factories)



Product Description

Air₂O's Extreme Low Humidity (ELH) solutions are specifically engineered to meet the stringent low dew point requirements of the lithium-ion battery industry. We understand the critical need for maintaining ultra-low humidity conditions to preserve material integrity and optimize battery performance, as any water contamination or premature chemical reactions can have serious consequences on battery safety and efficacy. With our ELH systems, we provide:



Precision Environmental Control

- ☐ Achieve dew points as low as -60°F.
- ☐ Prevent moisture intrusion to avoid material degradation and maintain battery performance and reliability.
- ☐ Deliver precise control and stability essential for optimal battery performance through our engineering expertise and attention to detail.



Ultra-Low Leakage Rate

- ☐ Achieve near-zero leakage at 8-inch water gauge negative pressure with (CL1) leakage class (as per Intertek).
- ☐ Utilize a triple-layer air gasket system and dual-level caulking to ensure airtightness under both positive and negative pressure conditions.



Robust Unit Construction

- ☐ The unit is designed, built, and shipped as a single section with a clean rectangular silhouette.
- ☐ Constructed with 4-inch double-skin panels injected with polyurethane and supported by an embedded aluminum frame, providing sturdiness and rigidity.
- ☐ Achieves a deflection class of (0.0005) equivalent to CD1, according to Intertek.



Thermal Break Design

- ☐ Features a "No Thru Metal" thermal break design in the casing, construction profile, doors, inspection window, frames, and drain connection assemblies.
- ☐ Ensures that exterior and interior components are completely independent, eliminating thermal bridges or metal fastener connections.
- ☐ Prevents energy losses and condensation on exterior walls.



Features and Benefits



Applications range from
-40°F(-40°C) to -76°F(-60°C)



Consistent performance even in
the most demanding environments



Quality Construction,
maintenance accessibility,
critical spares strategy.



Units are designed with custom configurations
of standard components to meet unique
project requirements



High-moisture removal rate
with reduced energy costs



Constant duty cycle operation



Outstanding warranty



Heat Recovery (Optional)

Heat recovery from regeneration exhaust air with
Outdoor Air Hot Water Coil (OA HWC)

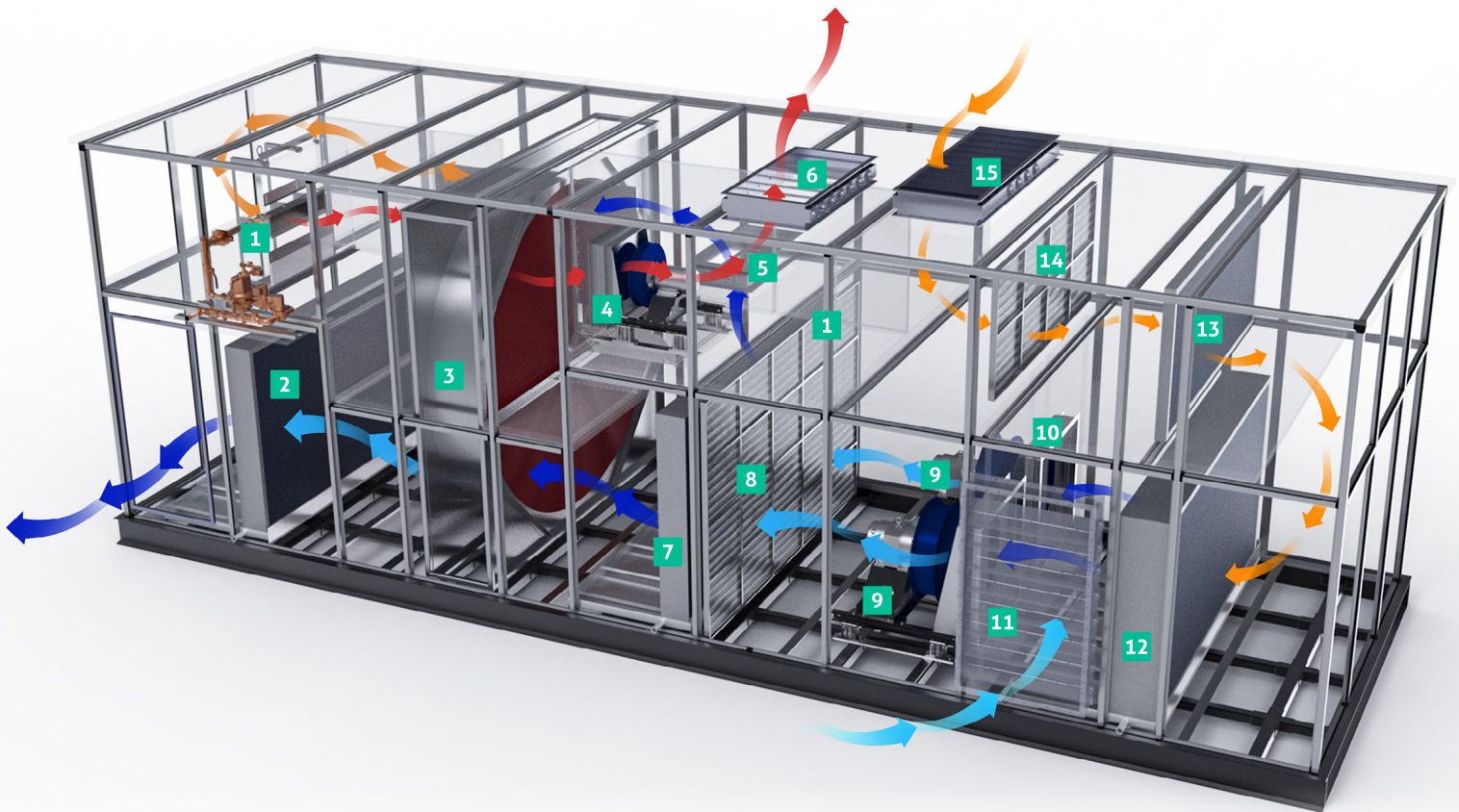


**Adaptive Desiccant Rotor Speed
(Optional)**

Adaptive desiccant rotor speed to maximize system
efficiency



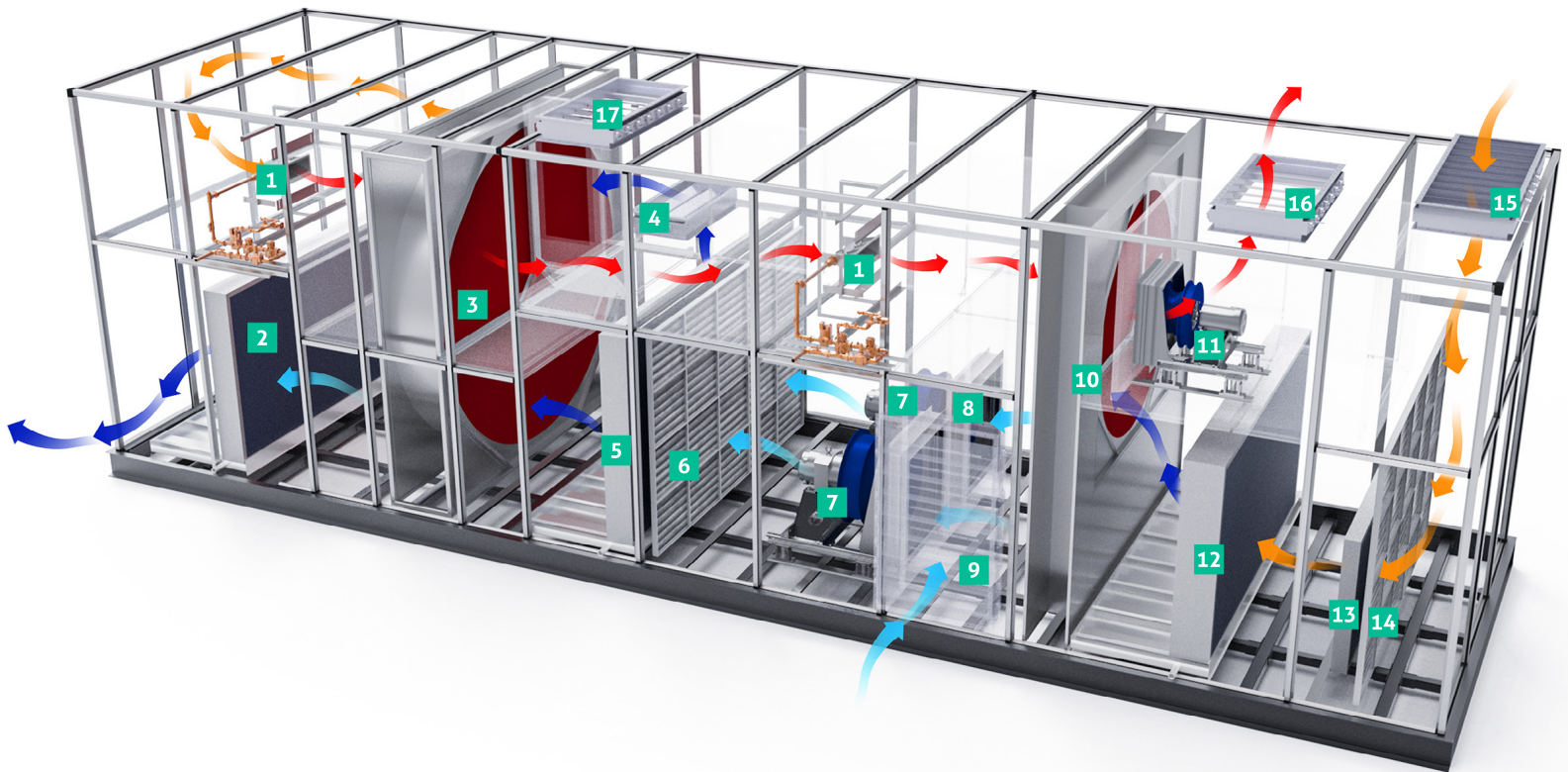
ELH Single Wheel Economized Packaged Unit



- | | | | |
|--|---------------------------|-----------------------------|------------------------------|
| 1 Direct Gas Heater (Burner) powered by Natural Gas (N.G) | 6 Exhaust Damper | 10 Backdraft Damper | 14 MERV 8 Filter |
| 2 Post-Cooling Coil | 7 Pre-Cooling Coil | 11 Return Air Damper | 15 Outside Air Damper |
| 3 Desiccant Wheel | 8 MERV 14 Filter | 12 OA-Cooling Coil | |
| 4 Reactivation Fan | 9 Supply Fan | 13 OA-Heating Coil | |
| 5 Burge Damper | | | |

Comprehensive design for a moisture adsorption unit with purge feature, designed to efficiently eliminate excess moisture from your indoor environment. combines the principles of moisture adsorption and targeted purging to deliver optimal dehumidification performance, ensuring a comfortable and healthy indoor space.

ELH Double Wheel Economized Packaged Unit

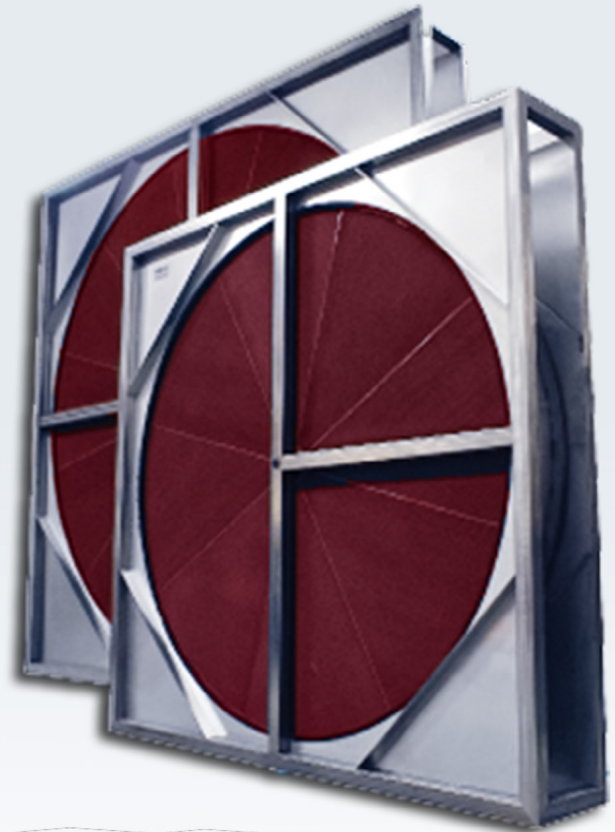


- | | | | |
|--|----------------------------|-------------------------------------|--|
| 1 Direct Gas Heater (Burner) powered by Natural Gas (N.G) | 6 MERV 14 Filter | 10 Secondary Desiccant Wheel | 14 MERV 8 Filter |
| 2 Post-Cooling Coil | 7 Supply Fan | 11 Reactivation Fan | 15 Outside Air Damper |
| 3 Desiccant Wheel | 8 Backdraft Damper | 12 OA-Cooling Coil | 16 Exhaust Damper |
| 4 Burge Damper | 9 Return Air Damper | 13 OA-Heating Coil | 17 OA-Auxiliary Reactivation Damper |
| 5 Pre-Cooling Coil | | | |

Comprehensive design for a moisture adsorption unit with purge feature, designed to efficiently eliminate excess moisture from your indoor environment. combines the principles of moisture adsorption and targeted purging to deliver optimal dehumidification performance, ensuring a comfortable and healthy indoor space.

Air₂O Desiccant moisture adsorbent media wheel:

- ISO-9001 registered Inorganic honeycomb impregnated in-situ synthesized silica gel desiccant system.
- Washable and non-shedding. (Capable of withstanding cleaning by vacuum cleaner, with a water or, water and detergent wash.)
- Cold rolled steel Rotor shaft with Permanently sealed pillow block-type external bearings. (fixed by lock collars and set screws to keep rotor and shaft centered)
- No leak air seals between the process and regeneration air streams for up to differential pressures of 8" in W.C.
- Stainless steel cassette face panels
- Face and Bypass optional
- Natural Gas or HW regeneration available
- Inverter-rated, geared motor desiccant rotor – drive system
- Rotor seals rated for 400°F+ continuous temperature rating.





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Innovation**

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