

HLR 15R

Rooftop HVAC Load Reduction Air Cleaning Module with CO₂ Removal



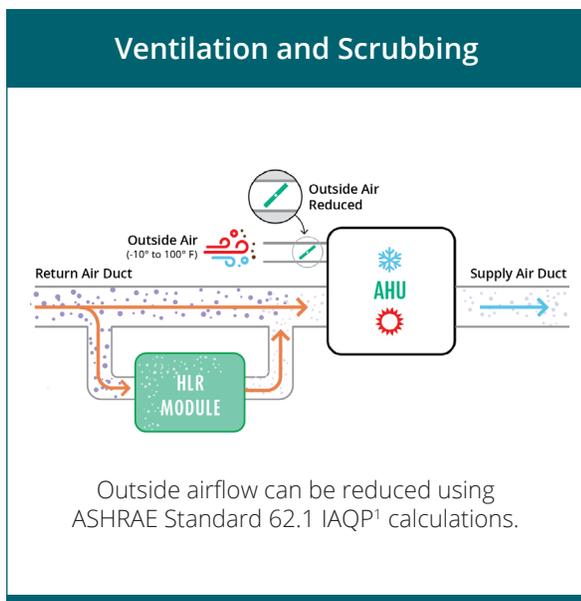
Improved Air Quality, Lower HVAC Costs

The HLR 15R is enVerid's award-winning air cleaning product that removes CO₂ and contaminants of concern from indoor air so that it can be safely recirculated. This solution reduces first costs and operating costs for new and existing HVAC systems, lowers a building's carbon footprint, and improves indoor air quality while also generating LEED and WELL building credits. Indoor air quality is improved by removing indoor-generated contaminants and reducing the intake of outdoor pollutants. The HLR 15R solution is compliant under ASHRAE 62.1 and IMC 403.2. The HLR 15R module is designed for outdoor use, typically on a rooftop. The HLR 200M module (not shown) is a model designed for indoor installations.



HLR 15R Module

| | | | | | | |
|---------------------|-------------|--------------|------------------------|---------------|-----------------------|---------------|
| | | | | | | |
| IMPROVE AIR QUALITY | SAVE ENERGY | REDUCE COSTS | REMOVE CO ₂ | REDUCE CARBON | EARN LEED/WELL POINTS | NO BYPRODUCTS |



How it Works

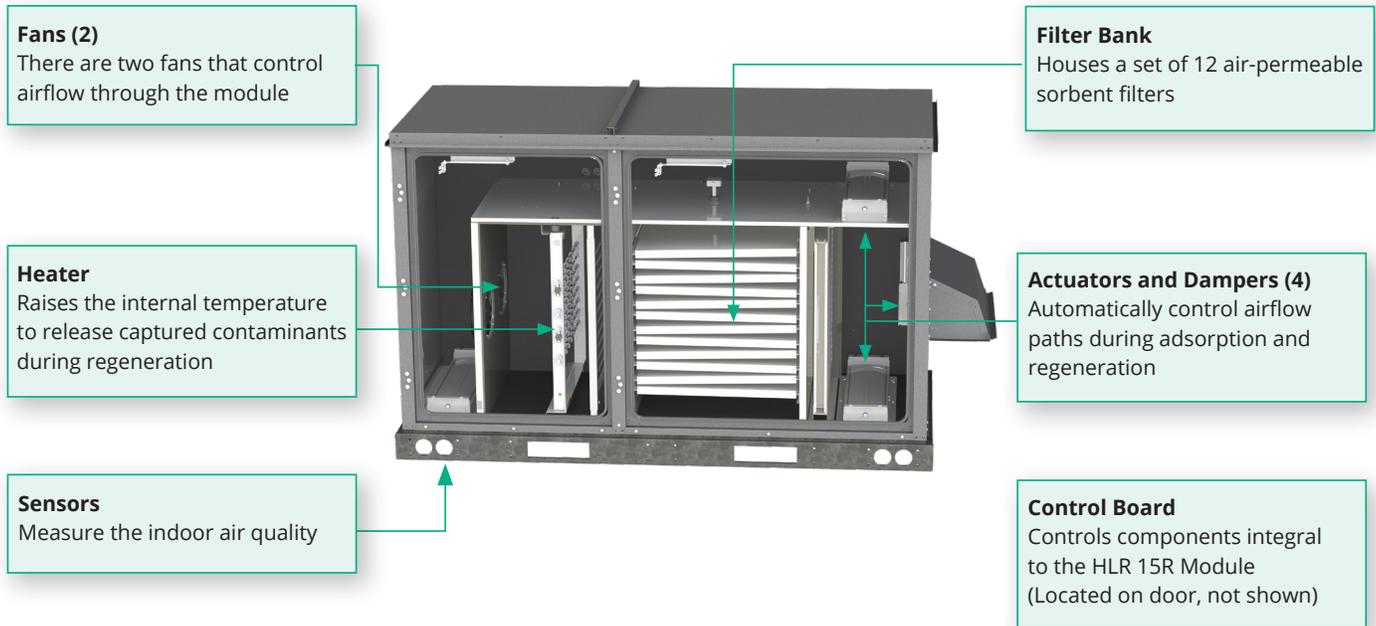
Indoor Air Scrubbing – One or more HLR 15R modules can be installed on the return air side of an air handling unit (AHU). Air is drawn into the 15R by internal fans, which blow the air through sorbent filters that capture and remove carbon dioxide (CO₂) and contaminants of concern from the air stream. Without producing any byproducts, the HLR 15R then blows clean air back into the return.

Automatic Self-Cleaning – The sorbents are designed to release captured contaminants upon heating. The 15R module is equipped with a built-in heater and performs a periodic regeneration process to clean the sorbents and expel contaminants outside the building. Regeneration is managed for optimal performance and minimal energy use.

Outside Air Intake Reduction – By cleaning recirculated air, outside air ventilation rates can be safely reduced by up to 85%, and new HVAC equipment can be downsized, using the ASHRAE Standard 62.1 IAQ Procedure.

¹ The mass balance analysis is performed per contaminant and per zone to ensure all contaminants are properly maintained below their established limits. These "per zone" outside air CFMs are summed to yield the total ventilation required for the building. enVerid's IAQP calculator makes it easy.

What's Inside the HLR 15R Module?



Broadly Applicable

The 15R is ideally suited to integrate with custom and semi-custom airside systems, including systems with dedicated outside air systems (DOAS) and energy recovery ventilation (ERV) components, in office buildings, schools, and other commercial buildings.



Office Spaces



Higher Education



K-12 Schools



Light Commercial

Proven, Award Winning HLR Technology®

Hundreds of HLR modules have been specified and installed around the world by leading consulting engineers and HVAC contractors. Air cleaning efficiency has been validated by ASHRAE 145.2 testing, and energy savings have been field validated by multiple utilities who have provided incentives for installing HLR modules as well as by the U.S. Department of Energy. Unlike many other air cleaning technologies, independent lab tests show that HLR modules do not produce any byproducts. In 2019, HLR technology received the AHR Expo Product of the Year Award, the most prestigious award for an HVAC product.



15R Module Specifications

GENERAL SPECS

| | |
|--|--|
| Installation | Insulated curb or above roof on equipment support |
| Construction | Double-wall, insulated, powder-coated galvanized steel |
| Sorbent Filters per Set | 12 |
| Typical Airflow (Adsorption) | 700 - 800 SCFM 1,190 - 1,360 CMH |
| Typical Airflow (Regeneration) | 250 - 300 SCFM 425 - 510 CMH |
| Static Pressure Increase to AHU Fan | None |
| Sound Level | 68 dBA |
| Maximum Allowed External Static Pressure | 0.2" WG / 50 Pa |
| Maintenance | Two-year Filter Replacement |
| Operating Life | 20+ years with scheduled maintenance |

COMMUNICATIONS

| | |
|-----------------|------------------------------|
| Cellular Link | 3G / 4G |
| BMS Integration | BACnet over MSTP or Hardwire |

SYSTEM POWER RATINGS (Single Phase)

| Voltage (VAC) | Frequency (Hz) | MCA | MOCP |
|---------------|----------------|--------|------|
| 208 V | 60 Hz | 34.3 A | 35 A |
| 277 V | 60 Hz | 30.6 A | 35 A |
| 220-240 V | 50 Hz | 28.4 A | 30 A |

SYSTEM POWER CONSUMPTION

| | 208 V | 277 V | 230 V |
|-------------------|---------|---------|---------|
| Adsorption Mode | 300 W | 300 W | 300 W |
| Regeneration Mode | 5,800 W | 6,800 W | 5,540 W |

REQUIRED CONTROL CONNECTIONS

| | |
|------------|----------------------------|
| Start/Stop | Binary Input to HLR Module |
|------------|----------------------------|

OPTIONAL CONNECTIONS

| | |
|-----------------------------------|-------------------------------|
| Fire Signal | Binary Input to HLR Module |
| HLR Status | Analog Output from HLR Module |
| Indoor Air CO ₂ Sensor | Analog Output from HLR Module |
| Indoor Air TVOC Sensor | Analog Output from HLR Module |

WEIGHTS

| | | |
|----------------------------|-----------|--------|
| Module Shipping Weight | 925 lbs | 420 kg |
| Filter Shipping Weight | 200 lbs | 91 kg |
| Installation (Module Only) | 865 lbs | 392 kg |
| Operating (With Filters) | 1,045 lbs | 474 kg |

DIMENSIONS (Front View)

| | |
|---|---------------------------------|
| Height (Including Rail) | 49" / 1,245 mm |
| Width (Includes Exhaust Hood) | 87" / 2,210 mm |
| Depth (Allow Additional 48" / 1,219 mm Clearance on Front and Back for Service) | 36" / 914 mm |
| Ducts (Indoor Air Inlet and Clean Air Outlet) | 6.5" x 22.75" / 165 mm x 578 mm |

CERTIFICATIONS

| | |
|-------------------------|--|
| HLR Module Safety | UL 1995:2015 Ed.5 CSA C22.2#236:2015 ed.5 |
| Filter Bank and Filters | UL 900:2015 Ed.8 |
| Air Cleaning Efficiency | ASHRAE 145.2 |

ASHRAE Standard Compliance

Standard 62.1 for Ventilation & Acceptable Indoor Air Quality

All of enVerid's HLR products are fully compliant under ASHRAE Standard 62.1. By using ASHRAE's performance-based Indoor Air Quality Procedure (IAQP) rather than the prescriptive Ventilation Rate Procedure (VRP), engineers can calculate a minimum ventilation rate that optimizes indoor air quality and energy efficiency. Introduced in 1981, IAQP determines outdoor air intake rates based on an analysis of contaminant sources and air cleaning capacity to stay below recommended contaminant concentration limits. Tools developed by enVerid's in-house engineering team, including enVerid's online IAQP Calculator, streamline the application of IAQP for engineers.

Standard 145.2 for Assessing the Performance of Gas-Phase Air Cleaning Systems

HLR technology is one of the only air cleaning technologies to have undergone independent lab tests for cleaning efficiency using ASHRAE Standard 145.2. Independent labs have conducted ASHRAE 145.2 single-pass efficiency testing for all the contaminants of concern required to maintain acceptable indoor air quality in buildings.

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Energy Savings. Air Quality.

enVerid Systems, the leading provider of sustainable indoor air quality (IAQ) solutions, helps buildings achieve air quality goals, save money, and reduce energy consumption and carbon emissions. Its flagship HVAC Load Reduction® (HLR) modules are award-winning air cleaners that deliver up to 40% HVAC energy savings and superior indoor air quality in new and existing buildings. For new HVAC systems, HLR modules also enable immediate capital cost savings. At the core of all HLR modules is enVerid Sorbent Ventilation Technology™ (SVT™), uniquely designed to capture gaseous contaminants that degrade indoor environmental quality. enVerid's HEPA air filtration products remove particulate and microorganism contamination, including viruses, from indoor air without the significant cost of upgrading mechanical systems and increasing mechanical ventilation rates. enVerid's products are deployed in commercial, academic, and government buildings globally. Its air cleaning products are ASHRAE Standard 62.1, LEED® and WELL compliant and eligible for utility rebates. For more information, please visit enverid.com.