

# HLR 15R

Rooftop HVAC Load Reduction Air Cleaning Module with CO<sub>2</sub> Removal



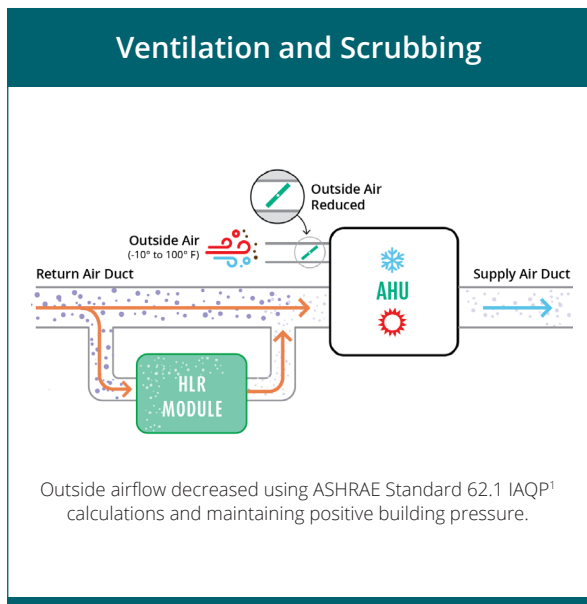
## Improved Air Quality, Lower HVAC Costs

The HLR 15R is enVerid's award-winning air cleaning product that removes CO<sub>2</sub> 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

<b>IMPROVE AIR QUALITY</b>	<b>SAVE ENERGY</b>	<b>REDUCE COSTS</b>	<b>REMOVE CO<sub>2</sub></b>	<b>REDUCE CARBON</b>	<b>EARN LEED/WELL POINTS</b>	<b>NO BYPRODUCTS</b>



## How it Works

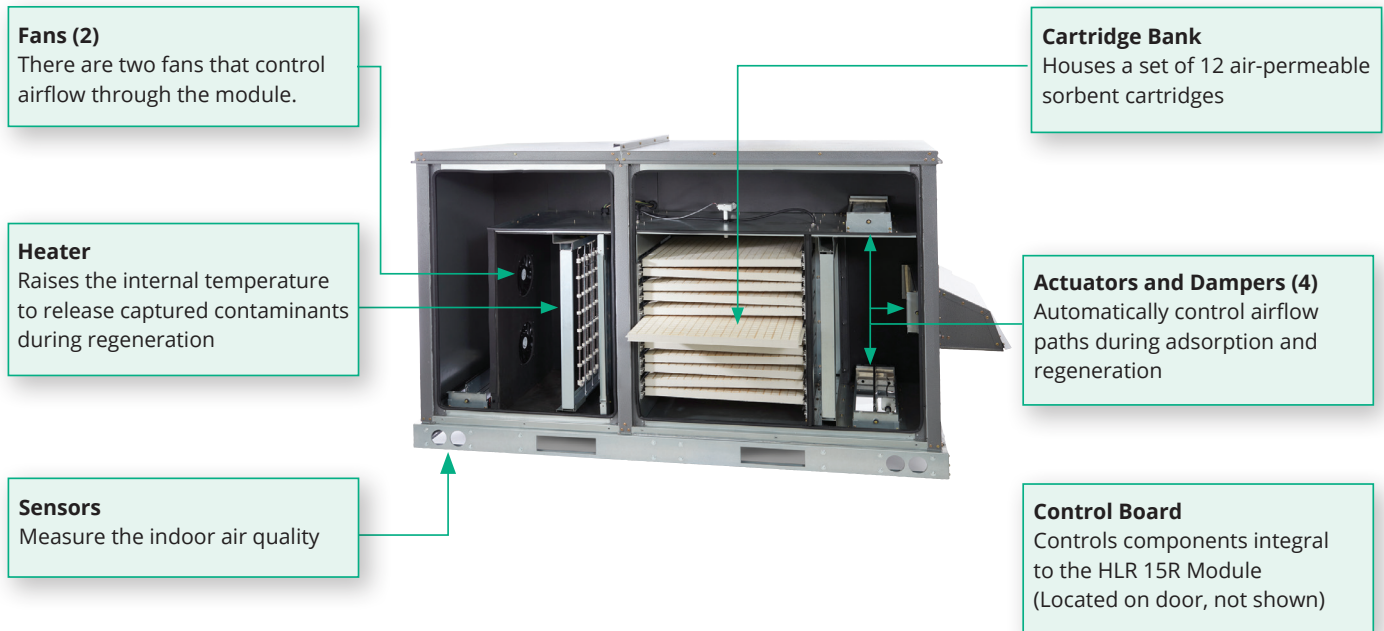
**Indoor Air Scrubbing** – One or more HLR 15R modules can be installed on the return air side of an air handling unit (AHU). Air is drawn into the 15R by internal fans, which blow the air through sorbent cartridges that capture and remove carbon dioxide (CO<sub>2</sub>) and contaminants of concern from 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.

<sup>1</sup> The mass balance analysis is performed per contaminant and per zone to ensure all contaminants are properly 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 Cartridges 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 Cartridge Replacement
Operating Life	20+ years with scheduled maintenance

## COMMUNICATIONS

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

## POWER (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
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
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## OPTIONAL CONNECTIONS

Fire Signal	Binary Input to HLR Module
HLR Status	Analog Output from HLR Module
Indoor Air CO <sub>2</sub> Sensor	Analog Output from HLR Module
Indoor Air TVOC Sensor	Analog Output from HLR Module

## WEIGHTS

Module Shipping Weight	925 lbs	420 kg
Cartridge Shipping Weight	200 lbs	91 kg
Installation (Module Only)	865 lbs	392 kg
Operating (With Cartridges)	1045 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
Cartridge Bank and Cartridges	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.