
OXYGEN8
NOVA
Low Profile ERV with
100% Outside Air

Who We Are

Oxygen8 is reinventing how buildings provide healthy and comfortable air in an energy efficient way. We work to enhance living and working environments with 100% fresh, filtered air using smart technology for maximum comfort and value.

[ox·y·gen·ate]

Nothing is more refreshing and essential to the human body than oxygen, which happens to be the eighth element in the periodic table. We oxygenate businesses, classrooms, senior care facilities and other buildings with 100% fresh air so people can work, live and breathe in a safe and comfortable environment.

Why We Do What We Do

To Create Healthy Indoor Environments

People are getting sick while working in offices, learning in classrooms and convalescing in senior care facilities. Traditional centralized HVAC systems that recirculate air without proper filtration and humidity control are the root cause of poor IAQ. To prevent the transmission of bacteria and viruses, improved HVAC systems must provide dedicated outdoor air and eliminate recirculation, have small zoned ventilation systems, include filtration, control humidity levels and used fixed-plate ERV technology that eliminates contaminant cross-over between outside and exhaust streams.

To Move Toward Building Electrification

To reduce greenhouse gases, many North American cities are moving toward net-zero energy buildings over the next decade, which will drive demand for all-electric HVAC systems and low energy technologies. We are here to meet that demand with our all-electric heating and cooling solutions.

For Better Building Design

Super-insulated buildings significantly reduce heating requirements, while climate change and developers' desires for large amounts of glazing will increase cooling needs. The integration of VRV with ERV helps to reduce energy consumption and meet ventilation requirements.

Table of Contents

NOVA ERV
100% Outside Air Smart Solution

The All Electric Solution

Nova's all-electric system with energy recovery helps to lower the carbon footprint of buildings. The unit integrates with VRV to provide heating and cooling using energy efficient heat-pump technology.

The High-Efficiency Solution

The Nova Series features variable speed plenum ECM direct-driven fans with low sound levels, energy recovery and insulated panels for a high-efficiency solution.

The Healthy Solution

Nova uses 100% outside air with no recirculation. The core is made of a polymer membrane with water-washability and has a mold and bacteria resistance rating of 0 under ISO-846. There is no virus cross-over: tested under ASTM F1671. EATR < 0.5% tested to AHRI 1060. The units ship with MERV 13 filters for outdoor air and MERV 8 filters for return air.

Intelligent Controls

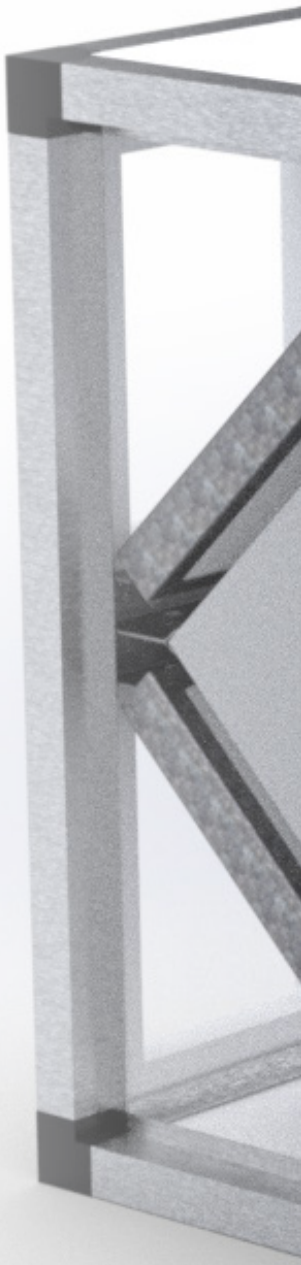
Intelligent controls communicate between the Nova Controller, Daikin VRV Outdoor Unit and EKEXV Expansion Valve Kit. Nova integrates with cloud-based third-party indoor air quality monitoring and control systems, which display equipment control information on a customizable dashboard.

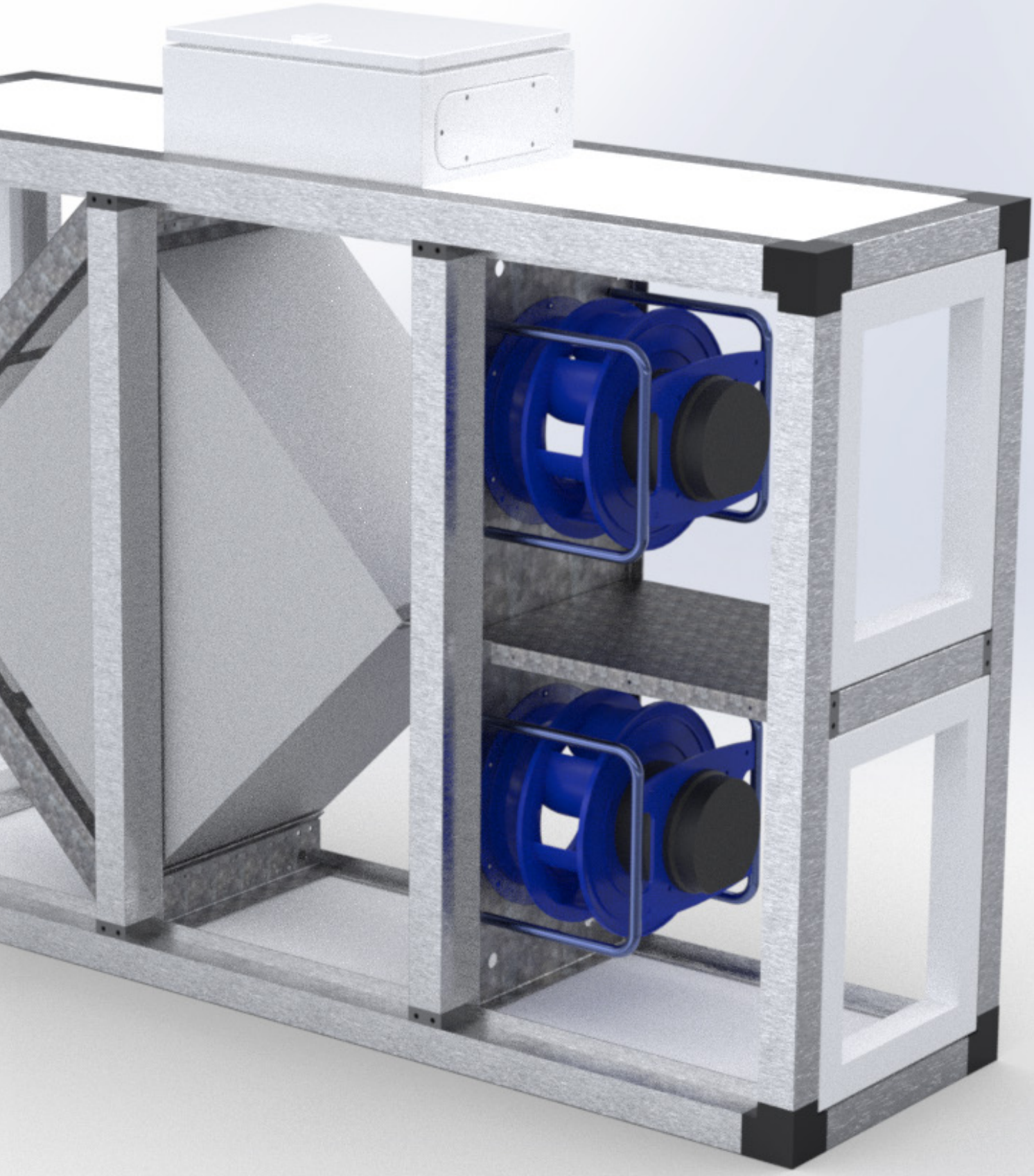
Fresh Air That Fits

Nova units have a 16 – 30" depth and a 325 – 8,100 cfm range. The units can be wall, ceiling or floor mounted, help free up valuable roof space by taking a decentralized ventilation approach and add floor space by eliminating vertical duct runs.

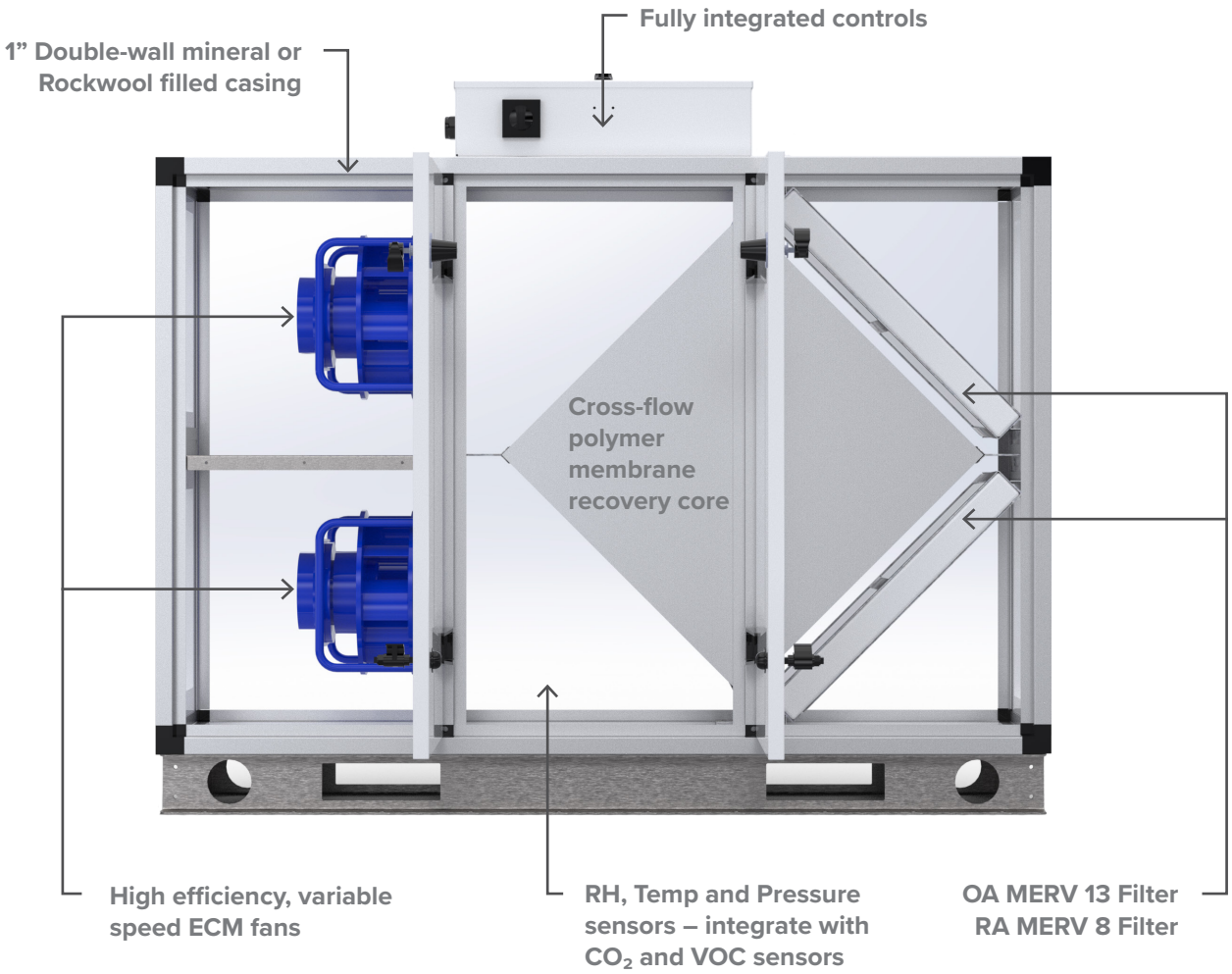
The Integrated Solution

Nova integrates with Daikin VRV technology for accurate temperature and humidity control. Controllers come factory-mounted to Daikin-approved DX Coil and Electronic Expansion Valves.



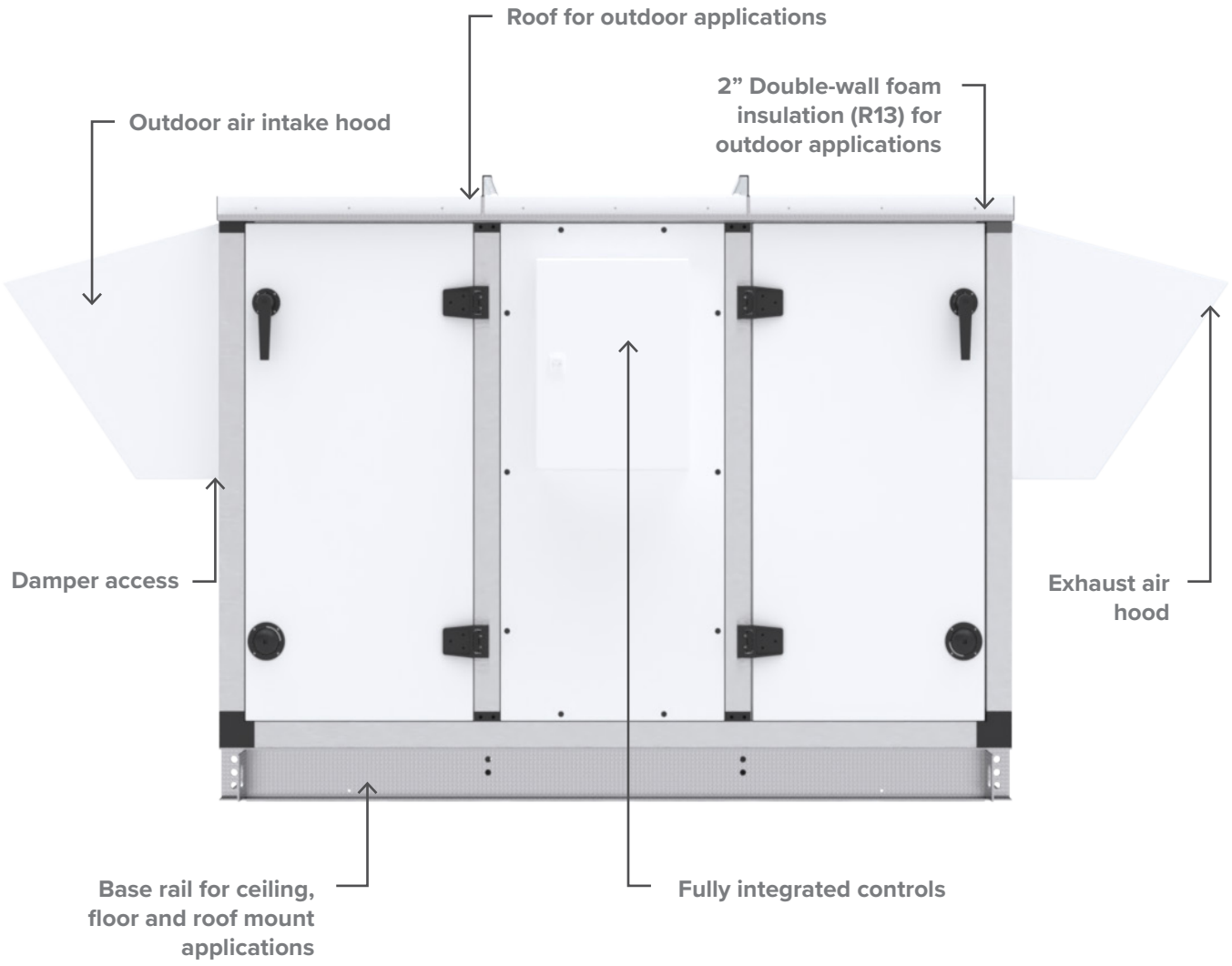


Nova System Overview
For Indoor Applications

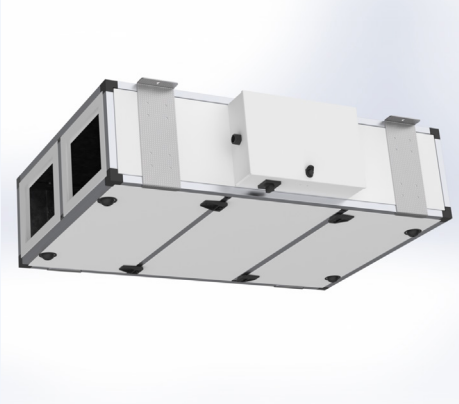


Nova System Overview

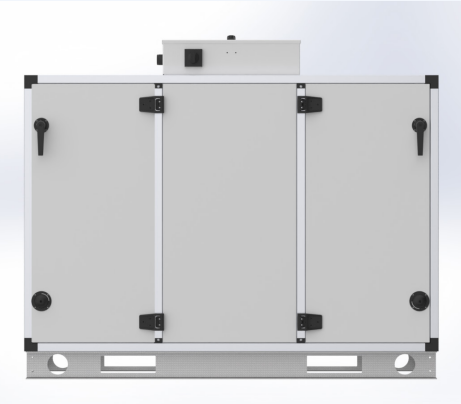
For Indoor/Outdoor Applications



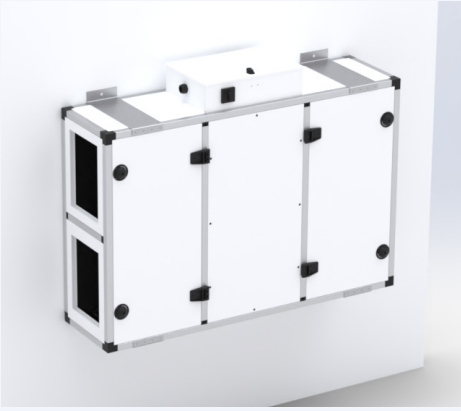
Mounting Options



Indoor: Horizontal (Ceiling Mount)



Indoor: Vertical (Floor Mount)



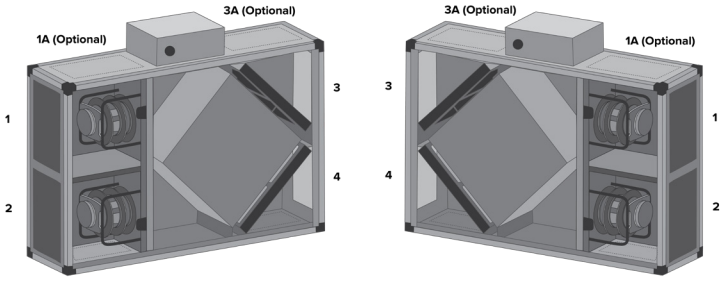
Indoor: Vertical (Wall Mount)
*Hardware and Engineering by Others

Indoor Model Sizing

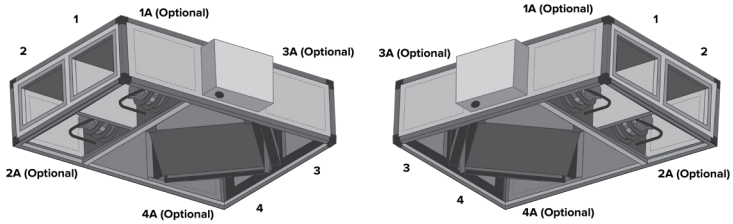
Model	Airflow Range (cfm)	ERV Dim. (W x L x H) in.	SRE*	LRE*	TRE*
A16	325 – 775	40 x 60 x 16	69%	54%	60%
			61%	43%	50%
B20	550 – 1300	48 x 72 x 20	68%	55%	60%
			60%	44%	50%
C20	1200 – 2200	60 x 84 x 20	68%	55%	60%
			60%	44%	50%
C24	1550 – 2700	60 x 84 x 24	68%	55%	60%
			60%	44%	50%
C30	2000 – 3500	60 x 84 x 30	68%	55%	60%
			60%	44%	50%

*Based on AHRI 1060 Cooling Conditions and that full performance can be found in the AHRI Directory

Duct Locations and Orientations



Left and right handed ducting options available for floor and wall mounted Nova applications.



Left and right handed ducting options available for ceiling mounted Nova applications.

Connection	Airflow Direction
1/1A	Exhaust air to outside (EA)
2/2A	Supply air to inside (SA)
3/3A	Outside air into ERV (OA)
4/4A	Exhaust air into ERV (RA)

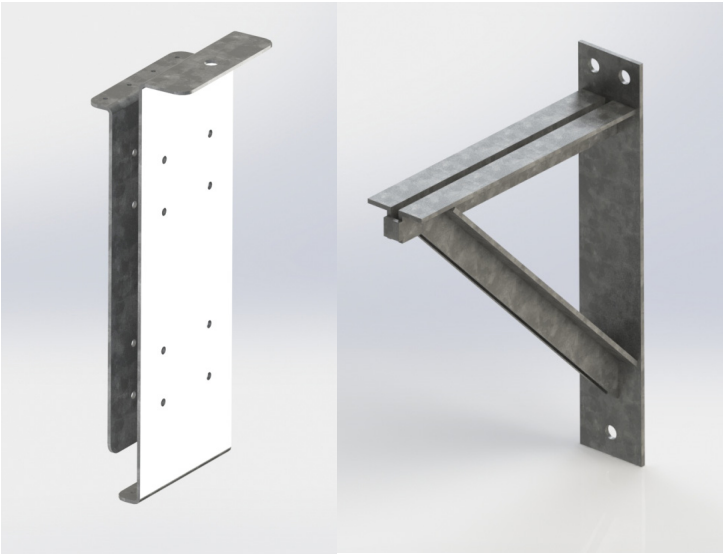
Indoor/Outdoor Model Sizing

Model	Airflow Range (cfm)	ERV Dim. (W x L x H) in.	SRE*	LRE*	TRE*
A18**	325 – 775	18 x 62 x 42	69%	54%	60%
			61%	43%	50%
B22**	550 – 1300	22 x 74 x 50	68%	55%	60%
			60%	44%	50%
C22**	1200 – 2200	22 x 86 x 62	68%	55%	60%
			60%	44%	50%
C26**	1550 – 2700	26 x 86 x62	68%	55%	60%
			60%	44%	50%
C32**	2000 – 3500	32 x 86 x 62	68%	55%	60%
			60%	44%	50%
C40**	3500 – 4400	39.5 x 86 x 62	68%	55%	60%
			60%	44%	50%
C48**	4400 – 5400	47.5 x 86 x 62	68%	55%	60%
			60%	44%	50%
C58**	5400 – 6600	57 x 86 x 62	68%	55%	60%
			60%	44%	50%
C70**	6600 – 8100	69 x 86 x 62	68%	55%	60%
			60%	44%	50%

*Based on AHRI 1060 Cooling Conditions and that full performance can be found in the AHRI Directory

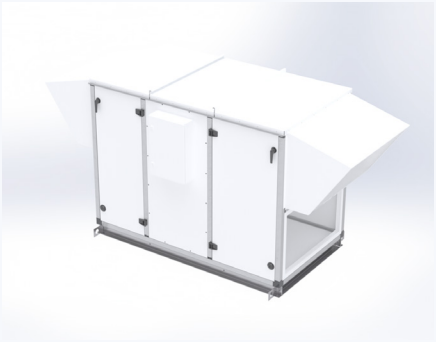
**2" panels are required for outdoor applications

Please contact Oxygen8 for airflows over 8,100 cfm.



If the unit is vertical floor-mounted, brackets (left) are provided. Knee-brace brackets (right) are supplied by others for wall-mounted applications.

Mounting Options

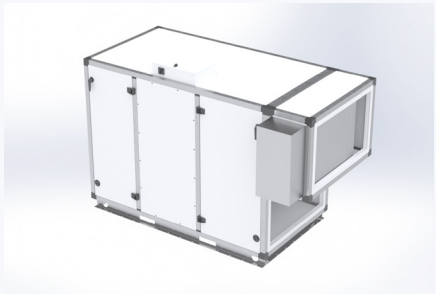


Outdoor Roof Mount

Indoor Mount

Configurations

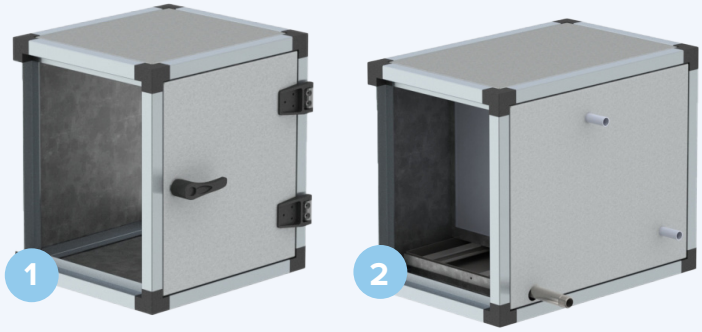
For more configurations, see p 15.

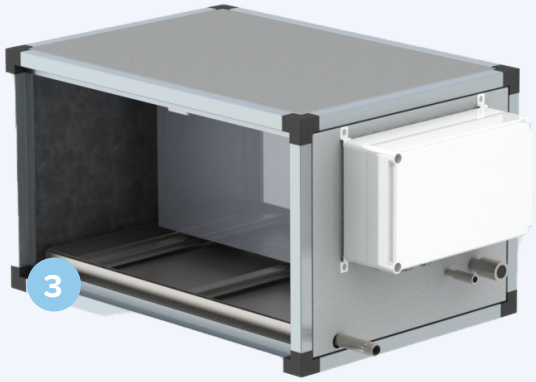


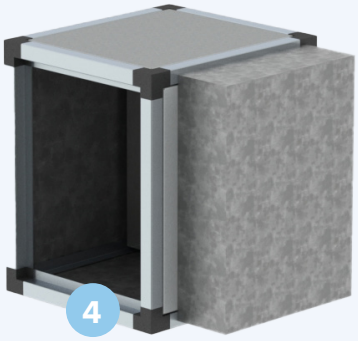
Nova C48 with Pre-heat

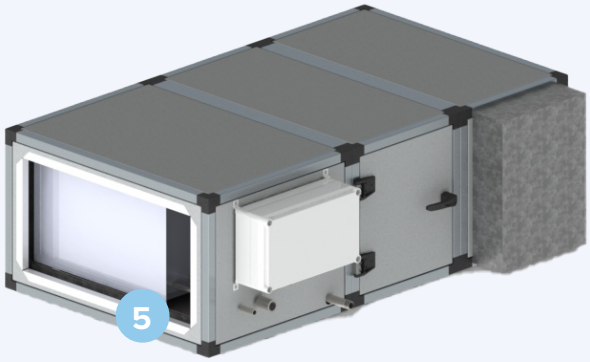
DX and Hot Water Coil

Accessories









1 **Access Door**

The access door allows for easy maintenance of the enclosed coils.

2 **Hot / Chilled Water Coil**

The hydronic coil includes external drain and vent connections. Coils are mounted in a rack over a stainless-steel double sloped condensate pan.

3 **DX Coil**

The Daikin-approved DX coil with factory-mounted W-Controller (EKEQ) and factory-brazed Daikin expansion valve (EKEXV) has an interlaced circuit to match the Daikin Outdoor Unit temperatures. Coils come shipped with nitrogen holding charge.

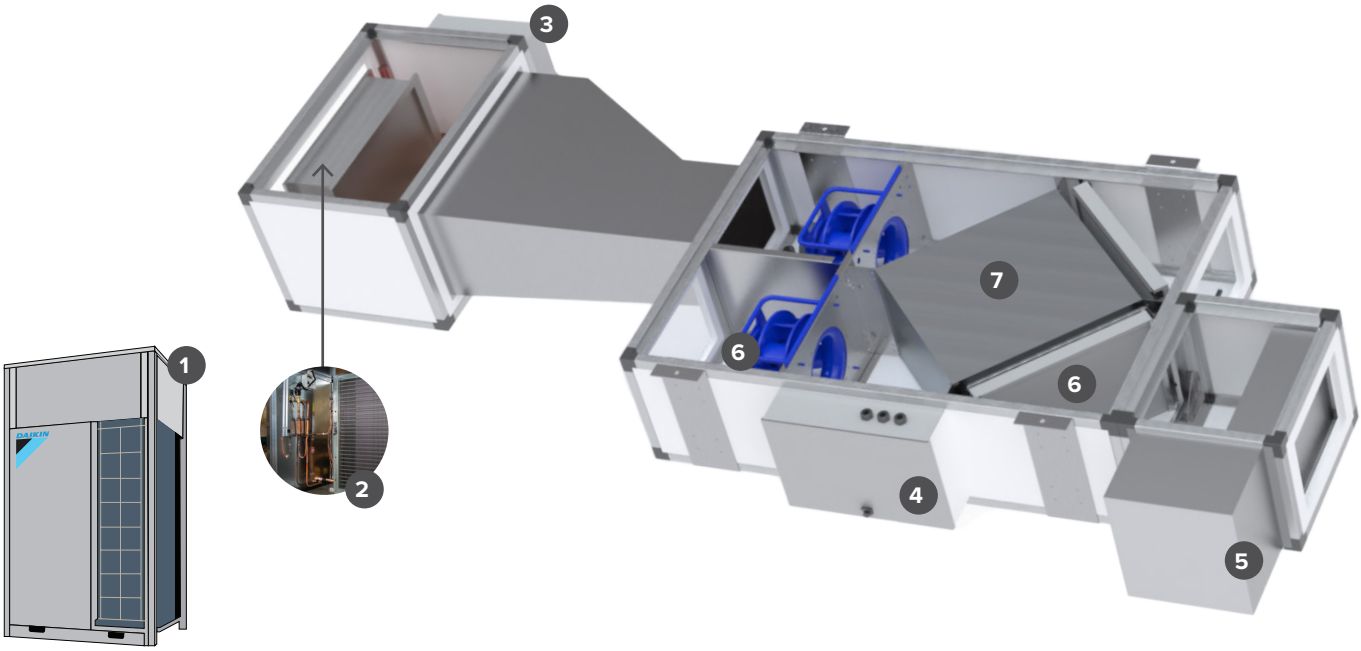
4 **Electric Pre/Post-Heat**

Electric Pre- and Post-Heat are available in all voltages (see page 9), with standard sizes to match the heating requirements.

5 **DX Coil with Access Door and Electric Heat or Hydronic or Coil**

Hydronic or DX coils are available for cooling applications. DX, hydronic or electric coils are available for heating applications. The access door section allows for ease of maintenance.

Nova and Daikin VRV Integration



1. **Daikin VRV Outdoor Unit**
   Daikin's inverter based outdoor unit for either heating or cooling (Heat Pump) operations. Available as either air cooled or water cooled.

2. **EKEXV (Expansion Valve Kit) Factory-Brazed to DX Coil**
   Daikin-approved DX Coil is factory-mounted to the decoupled coil section. The expansion valve kit (EKEXV) is factory-brazed to the DX Coil. The coil module ships separately and includes a stainless steel double sloped drain pan. The coil section comes with optional electric and hydronic reheat.

3. **EKEQFCBAV8 (W-Controller)**
   Factory-mounted to a decoupled DX coil section, the controller communicates with the Daikin VRV Outdoor unit, EKEXV Expansion Valve Kit and Nova Controller.

4. **Nova Controller**
   Nova ERV Units include a factory-mounted and tested controller to integrate with Daikin's systems. The controller is BTL-Certified and has BACnet IP compatibility.

5. **Pre-Heat**
   Pre-heat can be water (glycol) or electric. Pre-heat only activates when the outdoor air temperature is below the setpoint. The pre-heater is not required when the outdoor air is -5˚F and return air is 70˚F at 25% RH.

6. **Filters and Fans**
   Nova ships with standard MERV 13 filters for outdoor air and MERV 8 filters for return air.

   The unit features variable speed, direct-drive ECM plenum fans for high-efficiency and low sound levels.

7. **Energy Recovery**
   An AHRI-Certified cross-flow enthalpy heat exchanger transfers heat and humidity. The core is made of a polymer membrane with water-washability and has a mold and bacteria resistance rating of 0 under ISO-846. There is no virus cross-over: tested under ASTM F1671. EATR <0.5% tested to AHRI 1060.

Control Box

Optional Sensors

1 **Combined Humidity & Temperature Sensor**

Sensor is duct mounted and wired back to the unit controller.

2 **VOC/CO_2 Sensor**

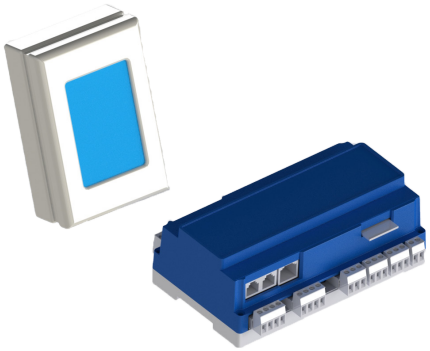
The VOC sensor measures the content of volatile organic compounds. The sensor is duct mounted and wired back to the unit controller

3 **Pressure Sensor**

Measures the pressure differential in the ductwork.

Smart Controls

Standard Control Algorithms



1. Airflow Control

Constant Flow
Constant Pressure
Demand Controlled Ventilation (CO_2/VOC)
Outside Air Compensation Based on Temperature

2. Temperature Control

Constant SAT
Constant RAT
Cooling
Summer Night Cooling

3. Humidity Control

Humidification
Dehumidification

4. Defrost Control

Exhaust Air Temperature
Measuring Pressure Across Heat Exchanger

5. Pre-Heater Control

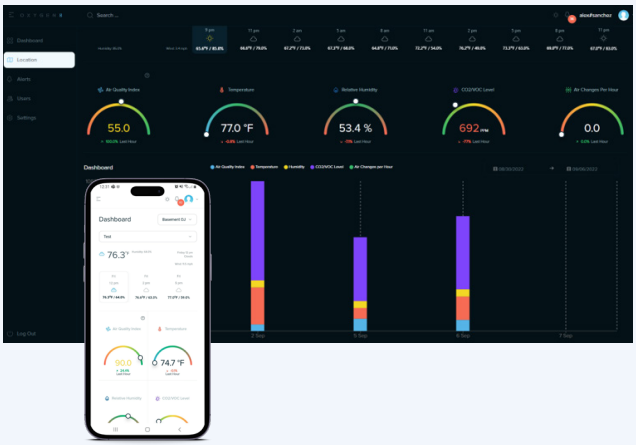
Hydronic Pre-Heater
Electric Pre-Heater

6. Remote Access

Internet Connection
BACnet

IAQ Monitoring

Stay connected with cloud-based indoor air quality management.



Cloud-based IAQ management allows for optimal monitoring and control of dedicated outside air systems, without a traditional building automation system. Accessible via web or mobile, cloud-based IAQ management is suitable for most building types.

Remotely manage equipment with smart device sensors, enable alerts, alarms, and notifications for specific trends or issues, while gaining insight into how equipment is performing.

Learn More Contact your local Oxygen8 Sales Rep.

Electrical

Model	Nom. V	Motor (kW)	SA Fan Qty	RA Fan Qty	Unit FLA	MCA	MROPD	RFS
A16/18	208	0.5	1	1	5.29	5.91	8.41	15A
	240	0.5	1	1	5.29	5.91	8.41	15A
B20/B22	208	0.78	1	1	8.09	9.06	12.96	15A
	240	0.78	1	1	8.09	9.06	12.96	15A
B20/B22	208	2.00	1	1	12.33	13.83	19.83	15A
B20/B22	460	2.50	1	1	8.14	9.14	13.14	15A
C20/C22	208	2.00	1	1	12.33	13.83	19.83	15A
C20/C22	460	2.50	1	1	8.14	9.14	13.14	15A
C24/C26	208	2.7	1	1	17.53	19.68	28.28	25A
C24/C26	460	3.7	1	1	11.74	13.19	18.99	15A
C30/C32	208	3	1	1	18.33	20.58	29.58	25A
C30/C32	460	3.3	1	1	10.94	12.29	17.69	15A
C40	208	2.00	2	2	24.33	27.33	39.33	35A
C40	460	2.50	2	2	16.14	18.14	26.14	25A
C48	208	2.7	2	2	34.73	39.03	56.23	50A
C48	460	3.7	2	2	23.34	26.24	37.84	35A
C58	208	2.00	3	3	36.33	40.83	58.83	50A
C58	460	2.50	3	3	24.14	27.14	39.14	35A
C70	208	2.7	3	3	51.93	58.38	84.18	80A
C70	460	3.7	3	3	34.94	39.29	56.69	50A

MCA Minimum Circuit Ampacity

MROPD Maximum Rating of Over-current Protective Device

RFS Recommended Fuse Size

VRV Integration Electrical

Daikin VRV Outdoor Unit

240/1/60

208/3/60

460/3/60

575/3/60

W-Controller (EKEQFCBAV3)

230/1/60

Nova Unit

240/1/60

208/3/60

460/3/60

Pre-Heat

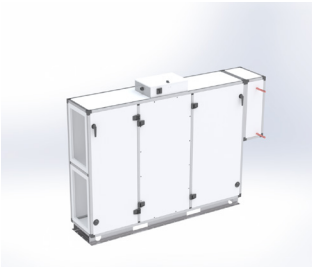
240/1/60

208/3/60

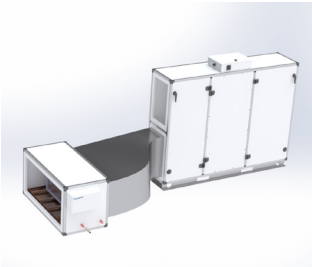
460/3/60

575/3/60

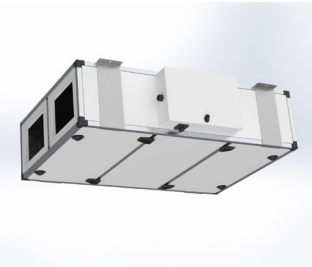
Unit Configurations



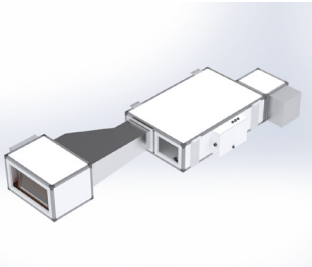
Nova ERV with Preheat (Vertical)



Nova ERV with DX Cooling and Heating (Vertical). Duct transition to be provided by others.



Nova ERV (Horizontal)



Nova ERV with DX Cooling and Heating (Horizontal). Duct transition to be provided by others.

More unit configurations are available, please contact your local Oxygen8 Sales Representative for information.

Bypass Capabilities

For Economizer and Defrost applications.
Available with heating and cooling accessories.

Indoor Only Model Sizes and Airflow Ranges

Model	Airflow Range (cfm)	ERV Dim. (W x L x H) in.	Orientation
C20 with Bypass	1300 – 2200	30 x 84 x 60	Vertical

Indoor/Outdoor Model Sizes and Airflow Ranges

Model	Airflow Range (cfm)	ERV Dim. (W x L x H) in.	Orientation
C22 with Bypass	1300 – 2200	32 x 86 x 62	Vertical
C26 with Bypass	2200 – 2700	39.5 x 86 x 62	Vertical
C32 with Bypass	2700 – 3500	47.5 x 86 x 62	Vertical
C40 with Bypass	3500 – 4400	57 x 86 x 62	Vertical
C48 with Bypass	4400 – 5400	69 x 86 x 62	Vertical

Specifications

System Overview

Oxygen8's Nova series is a modular design with a base ERV unit and optional coil modules for heating, cooling and Daikin VRV integration.

1 Standard Features

☐ High Efficiency Variable Speed EC Direct-Drive Motor

☐ Backward Inclined Fans

☐ 4 Standard Temperature Sensors (OA, RA, EA and SA Temperature Sensors)

☐ Integrated Controls with BACnet IP and BTL-Certification

☐ Non-Fused Disconnect Switch

☐ 1" Rockwool Filled Double-Wall Panels (6.5)
☐ 2" Foam Injected Double-Wall Panels (R13)

☐ Pre-Painted White Exterior Casing

☐ 22-Gauge Galvanized Steel Exterior
☐ 22-Gauge Galvanized Steel Interior Panel

☐ Filter Alarms: Signaled by factory mounted pressure sensors to measure filter pressure drop across filter

☐ 2" Pleated MERV 8 Return Air Filter, 2" MERV 13 Supply Air Filter

☐ Removable Hinge Pins for Limited Access

☐ AHRI-Certified Cross-Flow Core

☐ DAT Sensor for Dehumidification Control

☐ Hydronic 2-Way Valves and Actuators for Field Installation

2 Electric Coil Specifications

☐ SCR Controlled

☐ Non-Fused Disconnect Switch

☐ Requires a Separate Electrical Connection

3 Installation Options

☐ Horizontal (Ceiling Mount) – Brackets included

☐ Vertical (Base and Wall Mount) – Base Rail Included (3.5" high, 2.5" wide)

☐ Orientation: Right Hand or Left Hand

☐ Unit can be Completely Mirrored with Access Doors on Either Side

☐ Access Options: Side or Front Doors

4 Warranty

☐ 18 Months from Shipment on Unit

☐ 5 years from Shipment on CORE

5 VRV Integration

☐ Factory Mounted DX Coil and Factory Brazed Expansion Valve Kit to the Coil

☐ Factory Mounted and Wired W-Controller to the Coil Section (W-Controller requires a separate electrical connection)

6 Options

☐ Bypass for Economizer (Available in C20/C22-C48)

☐ 3- or 5-Year Warranty Add-On

☐ Optional Sensors: CO_2/VOC, Humidity, Pressure

FAQ

General

What material is the Oxygen8 casing made of?
Painted exterior with galvanized interior.

Who manufacturers the ECM fans?
Ziehl Abegg or EBM Papst.

Can you provide 18-gauge casing as a special?
Our standard casing is 20Ga, painted with a 22Ga galvanized internal panel.

Can the electrical/control box be mounted on a different location than the ERV?
Yes, please provide Oxygen8 with the distance from the unit to calculate the wire harness length.

Does the W-Controller require a separate power supply and what is the amp draw?
Yes, a 230V/1ph power supply, 15A.

Do you offer non-fused disconnect?
Yes, it is standard. We use a switch disconnect with internal breakers.

Is the damper powered by the unit?
Yes.

How are the dampers controlled?
Damper control is automatic based on the operation of the unit. The Nova BTL-Certified BACnet controller will provide an on/off output signal to the dampers. Dampers can be provided in matching casing or loose.

Where is the damper actuator located?
It is located outside of the air stream.

Is a filter sensor provided with the unit?
Yes. Dirty filter sensors are standard - an alert will be sent when filters need to be changed.

Is your controller standard on all units, and native BACnet IP, or do we need to add a card?
Yes, integrated, programmable controls come standard with every unit. They are BTL-Certified for BACnet IP. The card is native BACnet IP.

Are your controls MSTP compatible?
Yes, but a gateway would be required by the controls contractor.

How is the Daikin VRV controlled?
The preferred operation is through the W-Controller with a 0-10v signal. Oxygen8 provides a DAT sensor downstream of the coils to control leaving air temperature. Alternatively, the Daikin VRV can be controlled with a room sensor by using a Z-Controller.

Any selections under 3 tons must use a Z-Controller

What sensors come integral to the unit?
There are 4 internal temperature sensors for the unit and 1 for the electric pre-heat that are included.

Do you provide mounting brackets?
Yes, depending on the option (wall, ceiling, floor) we will provide base rails or angle brackets for both the unit and coil modules.

Notes

Notes

OXYGEN8