

O X Y G E N 8

**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.

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# **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**

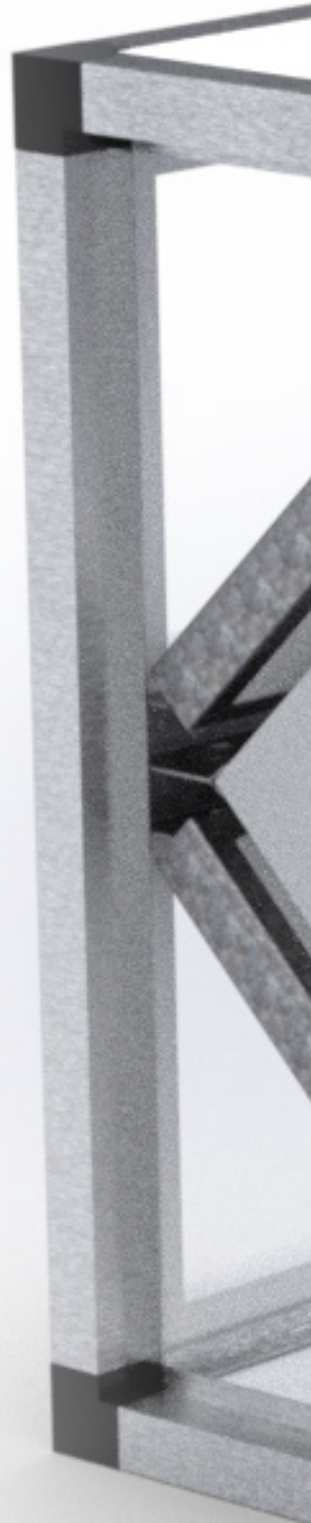
Intelligent controls communicate between the Nova Controller, Daikin VRV Outdoor Unit and EKEXV Expansion Valve Kit. Nova integrates with cloud-based third-party indoor air quality monitoring and control systems, which display equipment control information on a customizable dashboard.

### **Fresh Air That Fits**

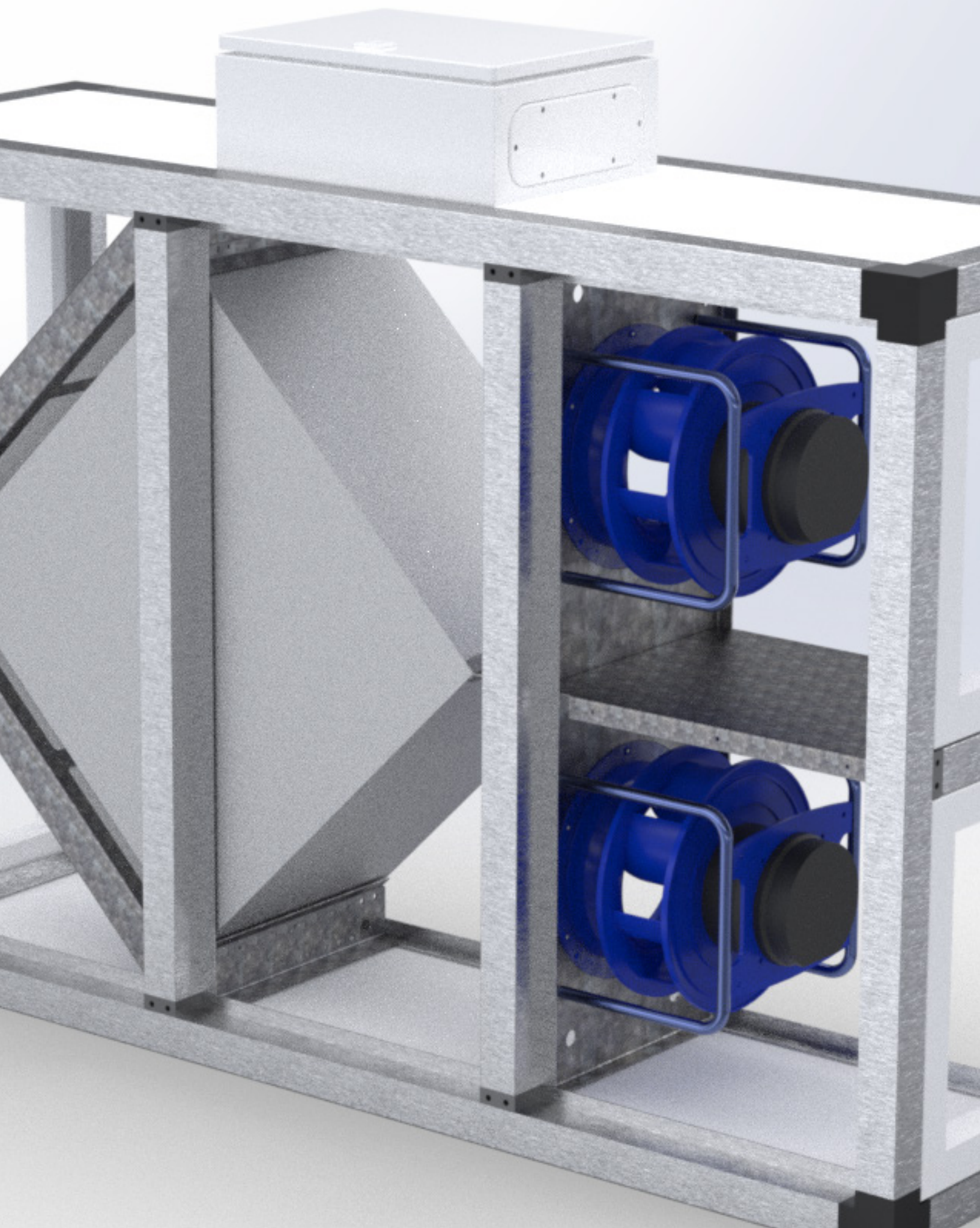
Nova units have a 325 – 8,100 cfm indoor/outdoor range and can be wall, ceiling or floor mounted. Low-profile units with 16 – 30" depth up to 3,500 cfm help free up valuable roof space by taking a decentralized ventilation approach and add floor space by eliminating vertical duct runs.

### **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.

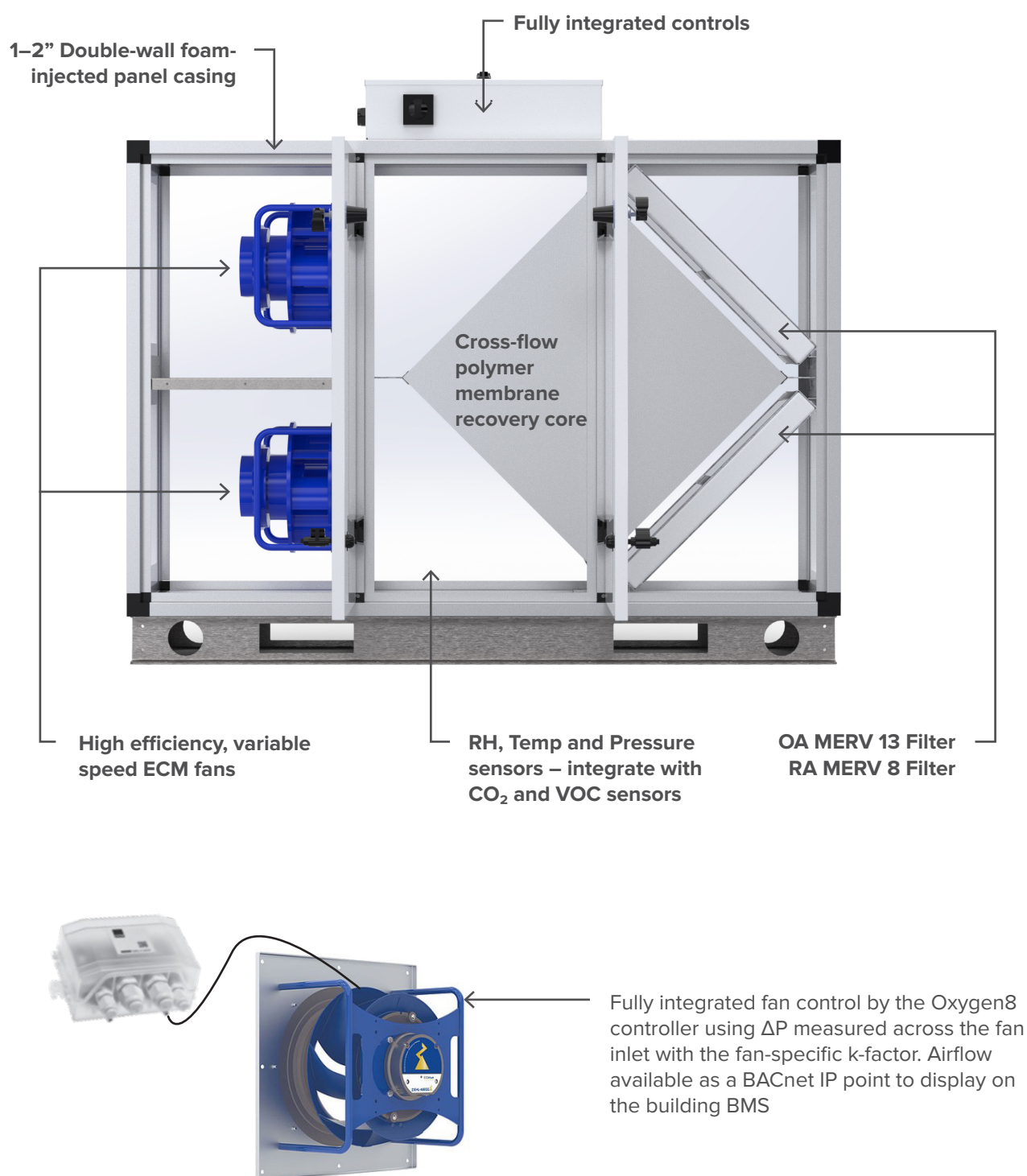


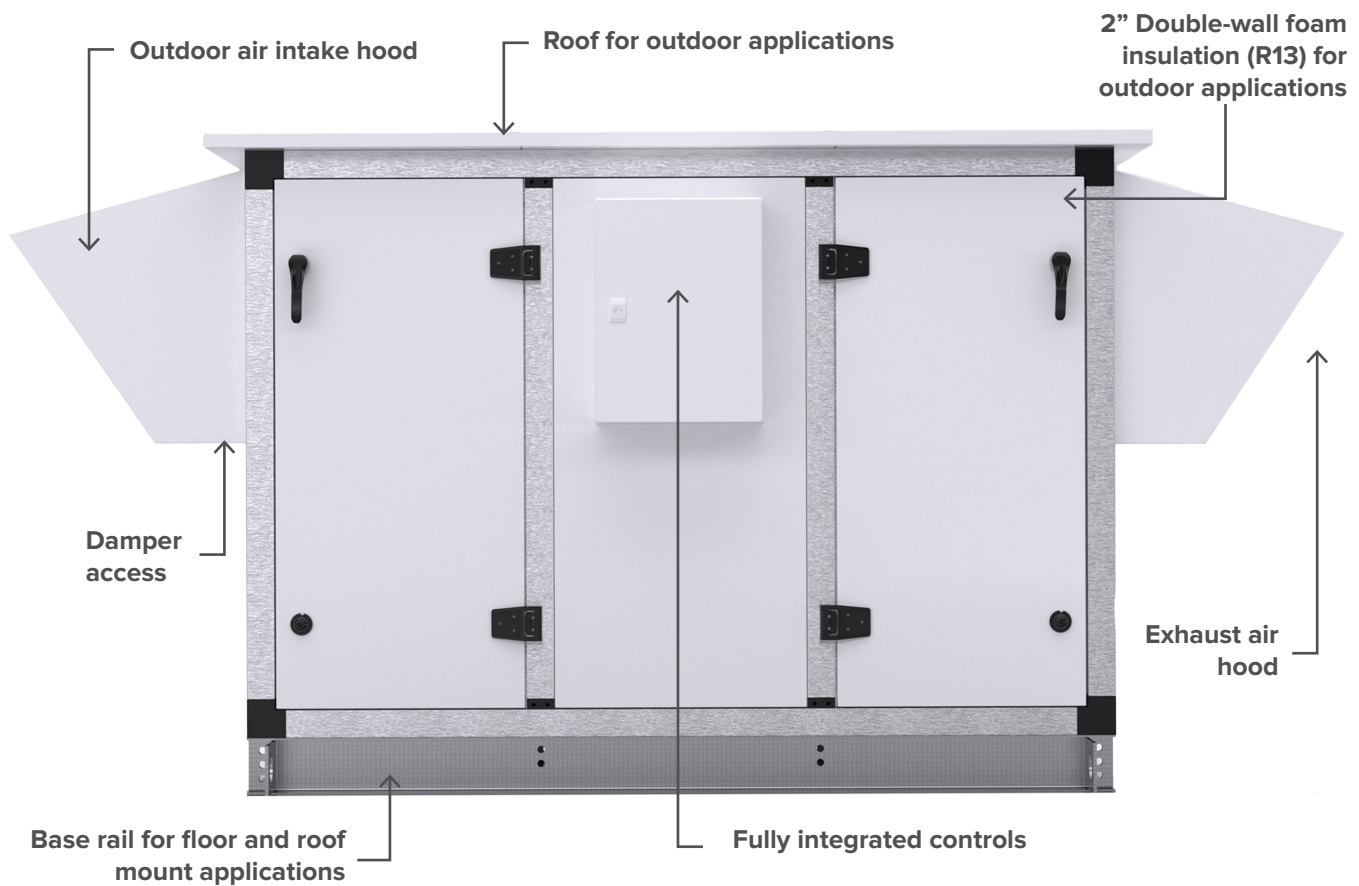




# Nova System Overview

For Indoor Applications





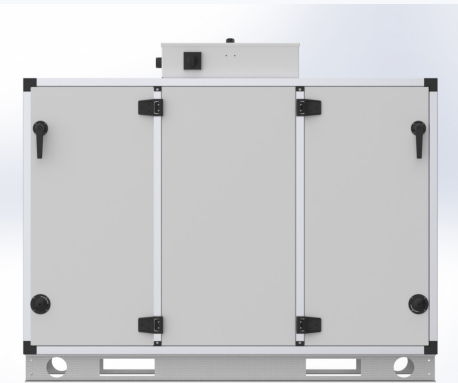
| Replacement Filter Sizes |            |             |                  |                 |                    |
|--------------------------|------------|-------------|------------------|-----------------|--------------------|
| Nova Unit Model(s)       | Width (in) | Height (in) | QTY OA (MERV 13) | QTY RA (MERV 8) | Face Area Velocity |
| A16, A18                 | 13 1/2     | 21 3/8      | 1                | 1               | 387                |
| B20, B22                 | 17 1/2     | 26 5/8      | 1                | 1               | 402                |
| C20, C22                 | 17 3/8     | 17 3/8      | 2                | 2               | 525                |
| C20B, C22B               | 17 3/8     | 27 3/8      | 2                | 2               | 333                |
| C24, C26                 | 17 3/8     | 21 3/8      | 2                | 2               | 523                |
| C26B                     | 17 3/8     | 17 3/8      | 4                | 4               | 322                |
| C30, C32                 | 17 3/8     | 27 3/8      | 2                | 2               | 530                |
| C32B                     | 17 3/8     | 21 3/8      | 4                | 4               | 339                |
| C40                      | 17 3/8     | 17 3/8      | 4                | 4               | 525                |
| C40B                     | 17 3/8     | 17 3/8      | 6                | 6               | 350                |
| C48                      | 17 3/8     | 21 3/8      | 4                | 4               | 523                |
| C48B                     | 17 3/8     | 21 3/8      | 6                | 6               | 349                |
| C58                      | 17 3/8     | 17 3/8      | 6                | 6               | 525                |
| C70                      | 17 3/8     | 21 3/8      | 6                | 6               | 523                |
| SPECIALS                 |            |             |                  |                 |                    |
| C58B                     | 17 3/8     | 17 3/8      | 6                | 6               | 525                |
| C70B                     | 17 3/8     | 21 3/8      | 6                | 6               | 523                |
| C90                      | 17 3/8     | 21 3/8      | 10               | 10              | 419                |
| C90B                     | 17 3/8     | 21 3/8      | 10               | 10              | 419                |



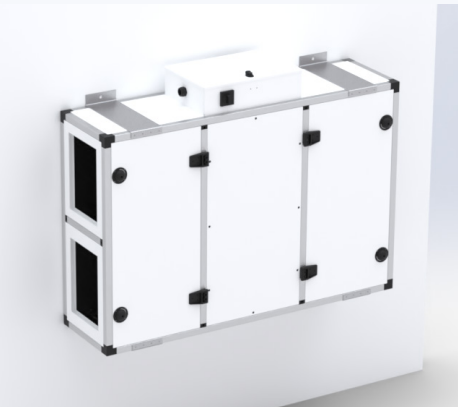
# Mounting Options



Indoor: Horizontal (Ceiling Mount)



Indoor: Vertical (Floor Mount)



Indoor: Vertical (Wall Mount)

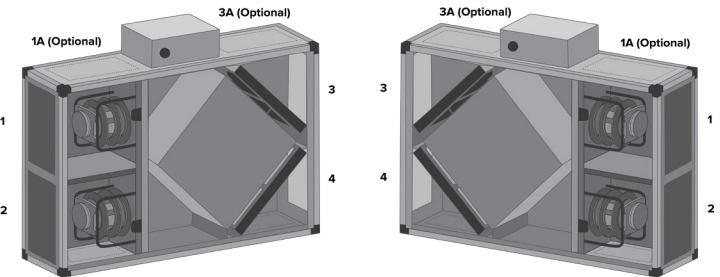
\*Hardware and engineering for knee brace support or otherwise is by others and is not shown.

# Compact Indoor Model Sizing

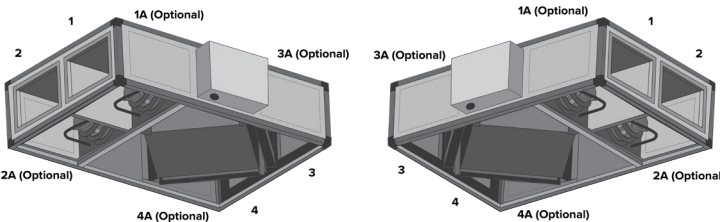
| Model | Airflow Range (cfm) | ERV Dim. (W x L x H) in. | SRE* | LRE* | TRE* |
|-------|---------------------|--------------------------|------|------|------|
| A16   | 325 – 775           | 40 x 60 x 16             | 69%  | 54%  | 60%  |
|       |                     |                          | 61%  | 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 or 1A    | Exhaust air to outside (EA) |
| 2 or 2A    | Supply air to inside (SA)   |
| 3 or 3A    | Outside air into ERV (OA)   |
| 4 or 4A    | Exhaust air into ERV (RA)   |



# Indoor/Outdoor Model Sizing

| Std. Model | IDU | ODU | Bypass Model | IDU | ODU | Nom. Panel** Thickness | Unit Dimensions |    |    |        | Max Airflow (CFM) | Mix Airflow (CFM) | SRE | TRE | LRE | Core Qty. |
|------------|-----|-----|--------------|-----|-----|------------------------|-----------------|----|----|--------|-------------------|-------------------|-----|-----|-----|-----------|
|            |     |     |              |     |     |                        | L               | H  | W  | Bypass |                   |                   |     |     |     |           |
| A16        | ●   |     |              |     |     | 1"                     | 60              | 40 | 16 |        | 775               | 325               | 61% | 43% | 50% | 1         |
| A18        |     | ●   |              |     |     | 2"                     | 62              | 42 | 18 |        |                   |                   |     |     |     |           |
| B20        | ●   |     |              |     |     | 1"                     | 72              | 48 | 20 |        |                   |                   |     |     |     |           |
| B22        |     | ●   |              |     |     | 2"                     | 74              | 50 | 22 |        |                   |                   |     |     |     |           |
| C20        | ●   |     | C20B         | ●   |     | 1"                     | 84              | 60 | 20 | 30     | 2200              | 1200              | 60% | 44% | 50% | 1         |
| C22        |     | ●   | C22B         |     | ●   | 2"                     | 86              | 62 | 22 | 32     |                   |                   |     |     |     |           |
| C24        | ●   |     |              |     |     | 1"                     | 84              | 60 | 24 |        | 2700              | 1550              | 60% | 44% | 50% | 1         |
| C26        |     | ●   | C26B         | ●   | ●   | 2"                     | 86              | 62 | 26 | 40     |                   |                   |     |     |     |           |
| C30        | ●   |     |              |     |     | 1"                     | 84              | 60 | 30 |        | 3500              | 2000              | 60% | 44% | 50% | 2         |
| C32        |     | ●   | C32B         | ●   | ●   | 2"                     | 86              | 62 | 32 | 48     |                   |                   |     |     |     |           |
| C40        | ●   | ●   | C40B         | ●   | ●   | 2"                     | 86              | 62 | 40 | 58     | 4400              | 3500              | 60% | 44% | 50% | 2         |
| C48        | ●   | ●   | C48B         | ●   | ●   | 2"                     | 86              | 62 | 48 | 70     | 5400              | 4400              | 60% | 44% | 50% | 2         |
| C58        | ●   | ●   | C58B         | ●   | ●   | 2"                     | 86              | 62 | 58 | 79     | 6600              | 5400              | 60% | 44% | 50% | 3         |
| C70        | ●   | ●   | C70B         | ●   | ●   | 2"                     | 86              | 62 | 70 | 91     | 8100              | 6600              | 60% | 44% | 50% | 3         |
| C90*       | ●   | ●   | C90B         | ●   | ●   | 2"                     | 86              | 62 | 91 | 113    | 10800             | 8100              | 60% | 44% | 50% | 4         |

## Notes:

- Based on AHRI 1060 Cooling Conditions and that full performance can be found in the AHRI Directory
- L (length), W (width), and H (height) dimensions are in inches.
- \*Custom unit size not available in software; contact Oxygen8 applications engineering for selection.
- \*\*2" nominal panels have an actual thickness of 1.77" with thermal insulation rating of R11.5; Nominal 1" thickness corresponds with an actual thickness of 1" and R6.5 rating.
- Please contact Oxygen8 for airflows over 8,100 cfm.

## Mounting Options



Outdoor Roof Mount



Indoor Mount

## Configurations



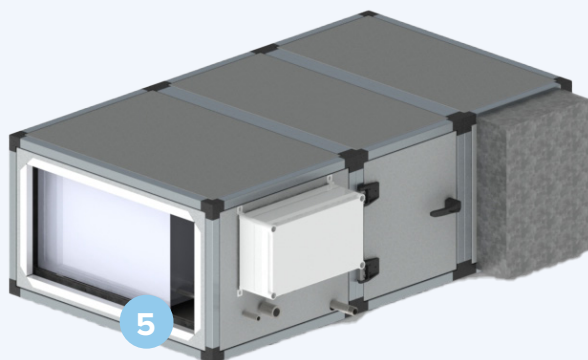
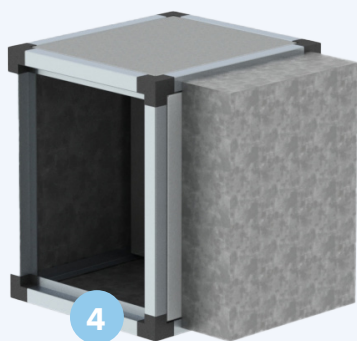
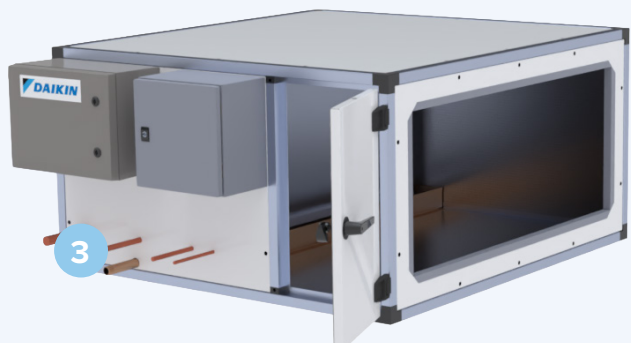
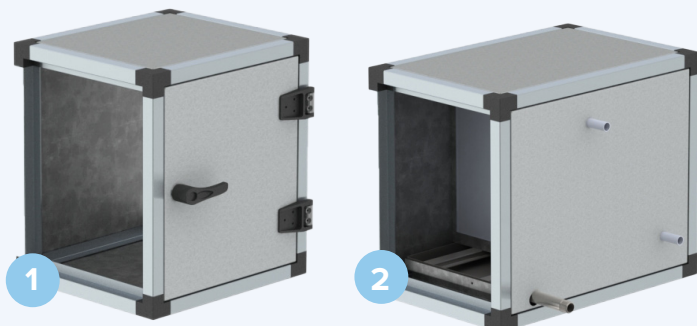
Nova C48 with Pre-heat



DX and Hot Water Coil

See page 15 for additional configurations.

# 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 / HGRH Coil

The Daikin-approved DX and optional HGRH coil with factory-mounted integration kit(s) (DX and/or DOAS controller) 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.

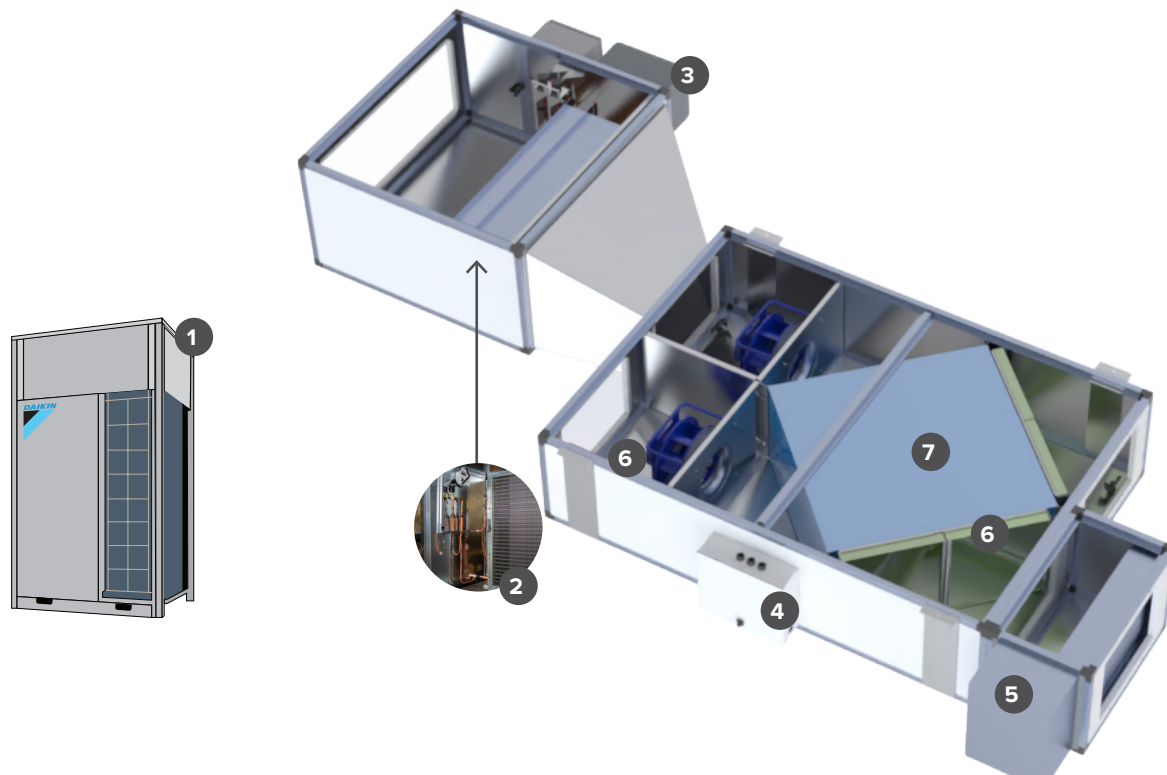
## 4 Electric Pre/Post-Heat

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 (Air Source Heat Pump or Heat Recovery) operations.

## 2. EKEXV (Expansion Valve Kit) Factory-Brazed to DX and/or HGRH Coil

Daikin-approved DX Coil is factory-mounted to the decoupled coil section. The expansion valve kit 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, hydronic, or hot gas reheat.

## 3. DX-Controller and/or DOAS-Controller

Factory-mounted to a coupled DX or HGRH coil section, the controller communicates with the Daikin VRV Outdoor Unit, Electronic Expansion Valve Kit and Ventum+ controls for accurate temperature and humidity control.

## 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.

## 6. Filters and Fans

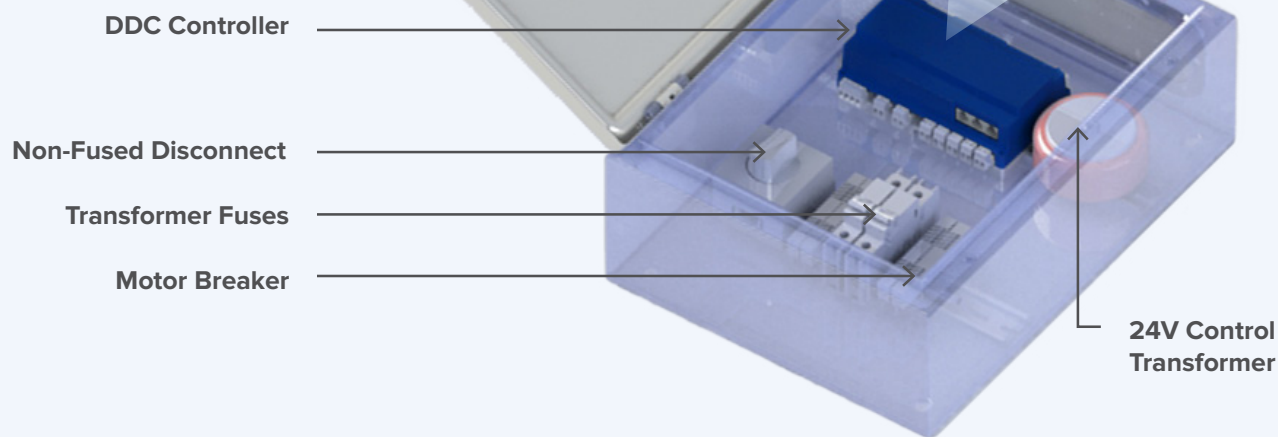
Nova ships with standard MERV 13 filters for outdoor air and MERV 8 filters for return air.

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.

# Controls by Distech



## Control Capabilities



### Fan Control

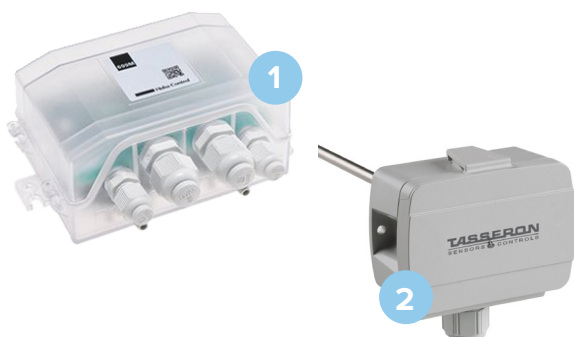
Constant Volume  
Constant Pressure  
Constant VOC/CO2



### Temperature Control

Pre-Heat / Post-Heat  
Chilled Water Coil  
DX Coil & HGRH Coil

## Standard Sensors



### 1 Dual Differential Pressure — Huba 699M

Differential Pressure for Fans and Filters

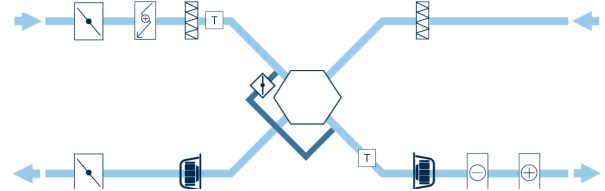
### 2 Supply Air Temperature and Relative Humidity — Tasseron THHDEY2D-C

Used to control post-heat, cooling, DX coil and HGRH

For a complete list of optional sensors, see the Oxygen8 Controls Brochure.

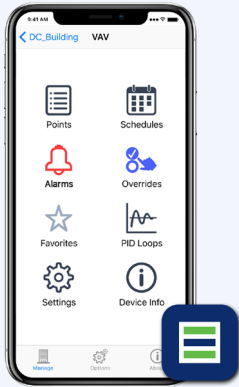


# User Interfaces



## Distech Eclipse Web Interface

A customized and branded interface that can be accessed via web or mobile browser.



## myDC Control App

Free app from Distech available on iOS and Android. myDC Control offers connectivity from tablet or mobile phone to any controller within wifi range. The app offer the same displays and graphics as the HMI, plus performance graphs.

Note: myDC Control requires a wifi dongle.



## UniTouch Room Device

Thermostat with a touch screen that displays temperature, fan speed, humidity (optional) and CO2 (optional) in the space, and allows for modification of the temperature setpoint and fan speed.



## Distech HMI

On-wall display with a jog-dial and a button.

# Electrical

| Model   | Voltage [V] | Phase | Motor [kW] | SA Fan Qty | RA Fan Qty | FLA [A] | MCA [A] | MOP [A] |
|---------|-------------|-------|------------|------------|------------|---------|---------|---------|
| A16/A18 | 208/240     | 1     | 0.5        | 1          | 1          | 5.48    | 5.625   | 15      |
| B20/B22 | 208         | 3     | 0.5        | 1          | 1          | 12.56   | 13.5    | 15      |
|         | 460         | 3     | 0.78       | 1          | 1          | 8.24    | 9       | 15      |
|         | 208/240     | 1     | 0.78       | 1          | 1          | 8.28    | 8.775   | 15      |
| C20/C22 | 208         | 3     | 2.00       | 1          | 1          | 12.56   | 13.5    | 15      |
|         | 460         | 3     | 2.50       | 1          | 1          | 8.24    | 9       | 15      |
| C24/C26 | 208         | 3     | 2.00       | 1          | 1          | 17.76   | 19.35   | 25      |
|         | 460         | 3     | 2.50       | 1          | 1          | 11.84   | 13.05   | 15      |
| C30/C32 | 208         | 3     | 2.7        | 1          | 1          | 18.56   | 20.25   | 25      |
|         | 460         | 3     | 3.7        | 1          | 1          | 11.04   | 12.15   | 15      |
| C40     | 208         | 3     | 3          | 2          | 2          | 24.56   | 25.5    | 30      |
|         | 460         | 3     | 3.3        | 2          | 2          | 16.24   | 17      | 20      |
| C48     | 208         | 3     | 2.00       | 2          | 2          | 34.96   | 36.55   | 45      |
|         | 460         | 3     | 2.50       | 2          | 2          | 23.44   | 24.65   | 30      |
| C58     | 208         | 3     | 2.7        | 3          | 3          | 36.56   | 37.5    | 40      |
|         | 460         | 3     | 3.7        | 3          | 3          | 24.24   | 25      | 25      |
| C70     | 208         | 3     | 2.00       | 3          | 3          | 52.16   | 53.75   | 60      |
|         | 460         | 3     | 2.50       | 3          | 3          | 35.04   | 36.25   | 40      |

**MCA** Minimum Circuit Ampacity

**MOP** Maximum Over Current Protective Device / Recommended Fuse Size

Unit ratings may vary based on specific R32 configuration. Single-circuit electric heater ratings are not considered.

## VRV Integration Electrical

### Daikin VRV Outdoor Unit

240/1/60  
208/3/60  
460/3/60  
575/3/60

### Nova Unit

208–240/1/60  
208/3/60  
460/3/60

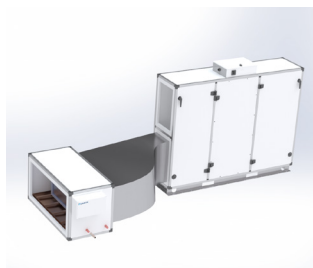
### Pre-Heat

208–240/1/60  
208/3/60  
460/3/60  
575/3/60

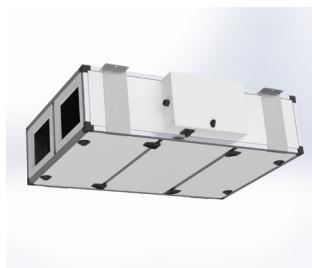
# Unit Configurations



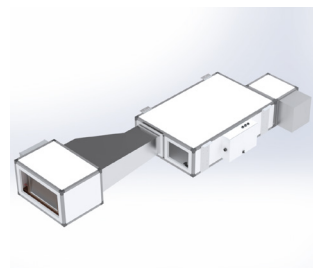
**Nova ERV** with Preheat  
(Vertical)



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



**Nova ERV**  
(Horizontal)



**Nova ERV** with DX/  
HGRH 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<br>(cfm) | ERV Dim.<br>(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<br>(cfm) | ERV Dim.<br>(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.

## 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" foam-injected double-wall panels (6.5)
- 2" foam-injected double-wall panels (R11.5)
- Pre-painted white exterior casing
- 22-gauge galvanized steel exterior
- 20-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
- AHRI-certified cross-flow core
- DAT sensor for dehumidification control
- Hydronic 2-way valves and actuators for field installation

## Electric Coil Specifications

- SCR Controlled
- Non-Fused Disconnect Switch
- Single-Point Power Connection

## 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

## Warranty

- 24 Months from Shipment on Unit
- 5 years from Shipment on CORE

## VRV Integration

- Factory Mounted DX Coils and Factory-Brazed Expansion Valve kit to the Coil
- Factory Mounted Hot Gas Reheat Coils and Factory-Brazed Expansion Valve kit to the Coil
- Factory Mounted and Wired DX and/or DOAS Controller
- Factory integrated refrigerant leak detection sensors where required for R32 applications

## Options

- Bypass for Economizer (Available as a standard configuration for C20/C22-C48)
- Extended 5-Year Warranty
- Optional Sensors: CO<sub>2</sub>/VOC, Humidity, Pressure



# FAQ

## General

### **What material is the Oxygen8 casing made of?**

Painted exterior with galvanized interior.

### **Who manufactures the ECM fans?**

Ziehl Abegg or EBM Papst.

### **Can you provide 18-gauge casing as a special?**

No.

Our standard casing is 22Ga, painted with a 20Ga 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 DX/DOAS Controller require a separate power supply and what is the amp draw?**

No, the Daikin controller is powered directly by the unit, using a stepdown transformer for any input voltage to achieve 24V supply to the integration kits. Single-circuit power connection to decoupled coil module is completed in the field.

### **Do you offer non-fused disconnect?**

Yes, it is standard. We use a switch disconnect with motor circuit 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 with Hot Gas Reheat?**

The preferred operation is through the Daikin DOAS (and DX, where necessary) Controller(s) with a Modbus link to the Oxygen8 DDC controller (standard). Oxygen8 provides a DAT sensor downstream of the coils to control leaving air temperature when controller is provided.

### **How is the Daikin VRV controlled without Hot Gas Reheat?**

The preferred operation is through the Daikin DX Controller with a Modbus link to the Oxygen8 DDC controller (standard). Oxygen8 provides a DAT sensor downstream of the coils to control leaving air temperature when controller is provided.

### **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?**

Mounting brackets are provided for ceiling hung units. For wall-mounted applications, engineering and supply of mounting brackets is by others.

## Notes

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## Notes

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