

O X Y G E N 8



TERRA

AHU with VRV Integration
Without Energy Recovery

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, new HVAC systems must provide dedicated outdoor air, have small zoned ventilation systems, high filtration, and the ability to control humidity levels.

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 helps to reduce energy consumption and meet ventilation requirements.

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Terra AHU* with VRV Integration

100% Outside Air or Mixed Air Options

*Without Energy Recovery

All Electric Solution

This all-electric ventilation solution helps to reduce the carbon footprint of buildings, while bringing outside air into the space. Terra integrates with Daikin's VRV technology for accurate temperature or temperature and humidity control all year round. The Terra unit, Daikin controller(s), and optional electric pre-heater can all be powered from a single-point power connection.

Low-Profile Split Solution

Terra units have a 18 – 30" depth and 450 – 4,800 cfm range. The modular split configuration allows the air handler to be installed indoors, within the ceiling plenum, freeing up valuable roof, floor, and/or mechanical room space while providing better air control to zones.

Accurate Temperature & Humidity Control

With Daikin VRV heat recovery systems, both leaving air temperature and humidity can be controlled accurately.

Easy to Select and Install

With Oxygen8's intuitive selection software and variety of coils, (matching Daikin's selection parameters and specifications), Terra selection is quick and easy.

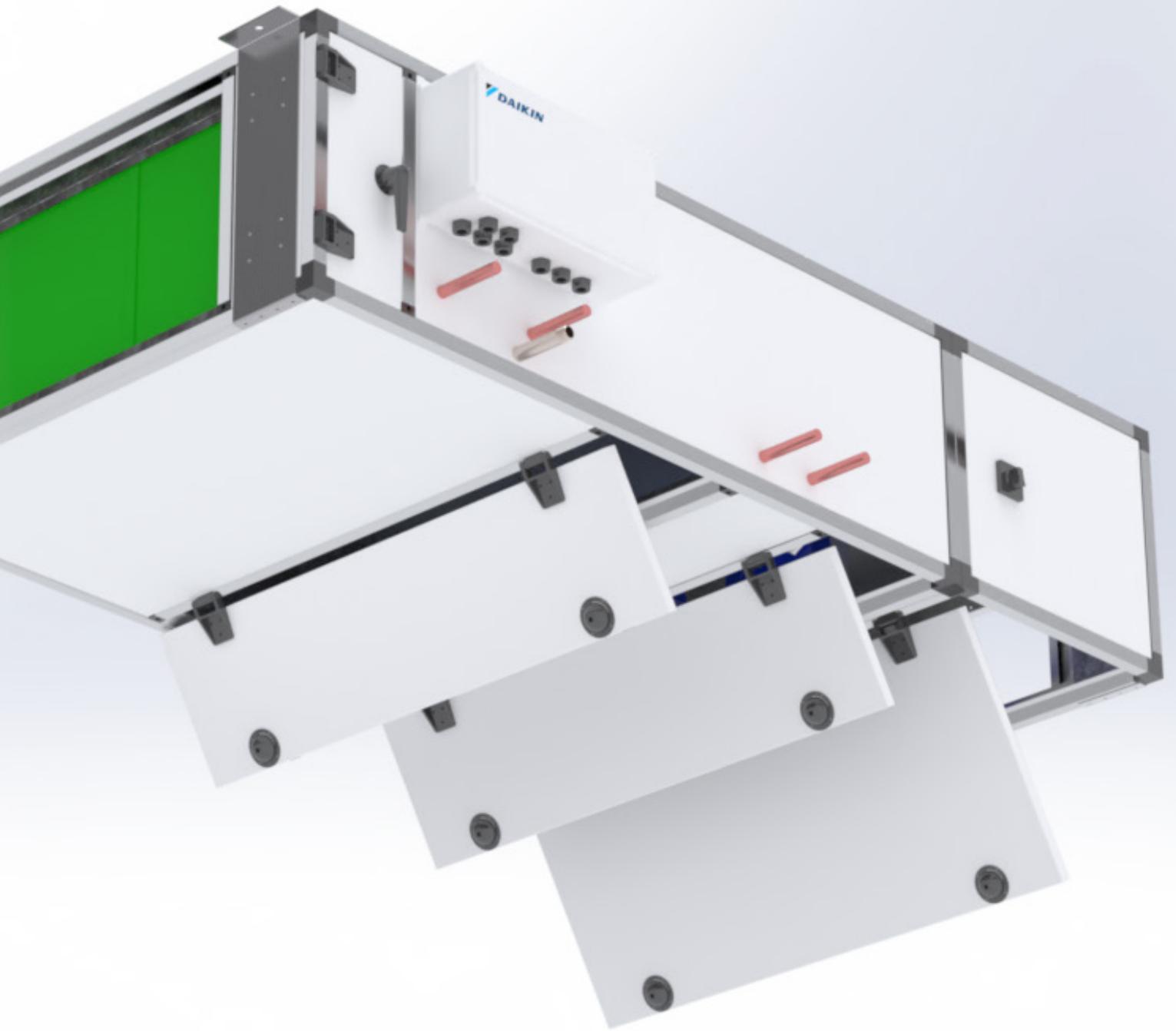
Integrated Controls

Factory-mounted controls integrate seamlessly with BMS or operate independently, with over 75 built-in control functions including discharge air temperature and humidity control, weekly schedules, and dirty filter alarms.

Mixed Air Ventilation with Enthalpy Economizer

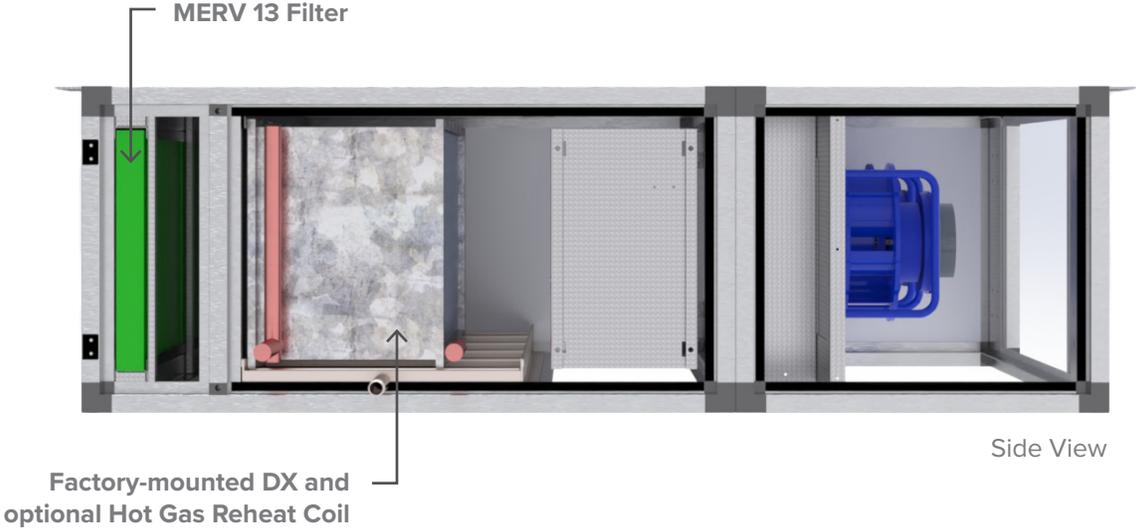
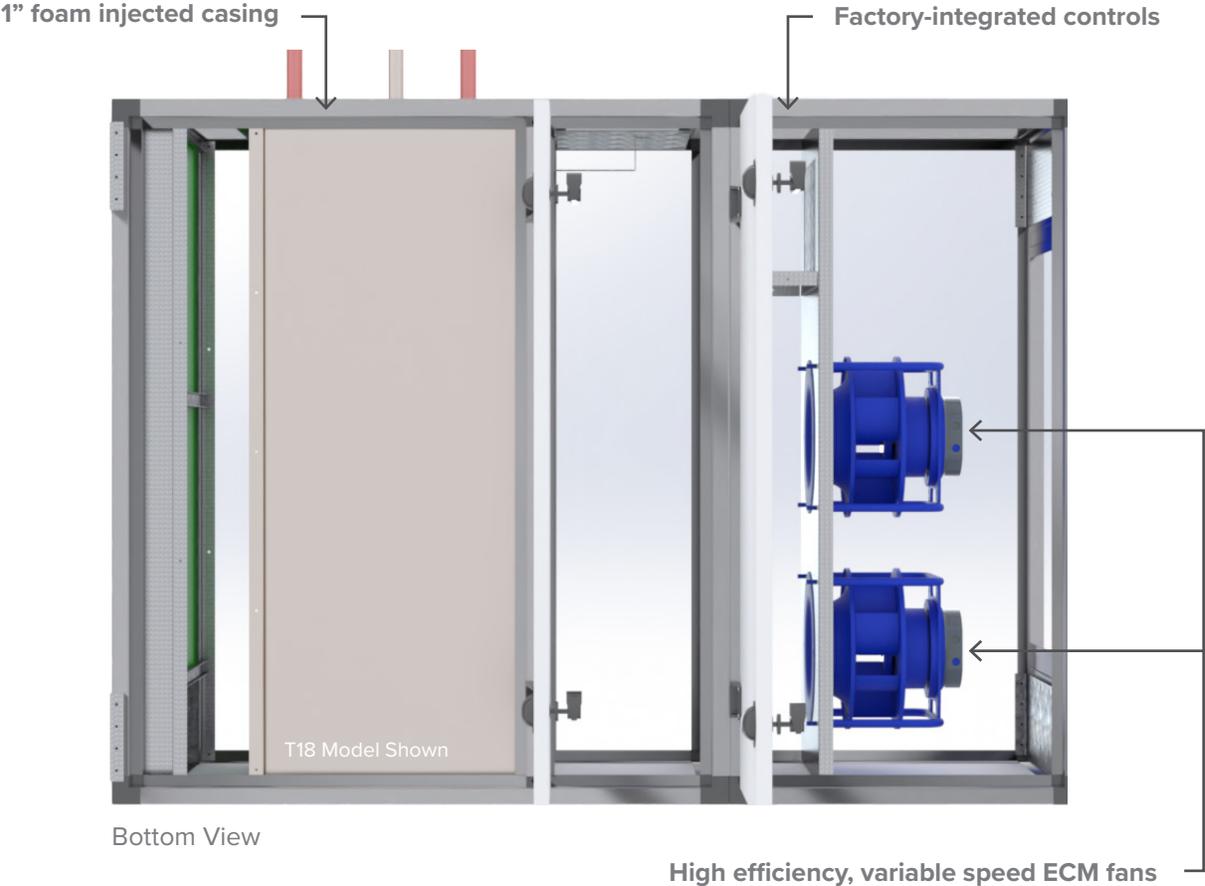
With an optional mixing box and modulating return and outdoor air dampers, mixed air ventilation with optional enthalpy economizer and night setback mode allows for space conditioning and ventilation at even greater energy efficiency.





Terra System Overview

For Indoor Applications*

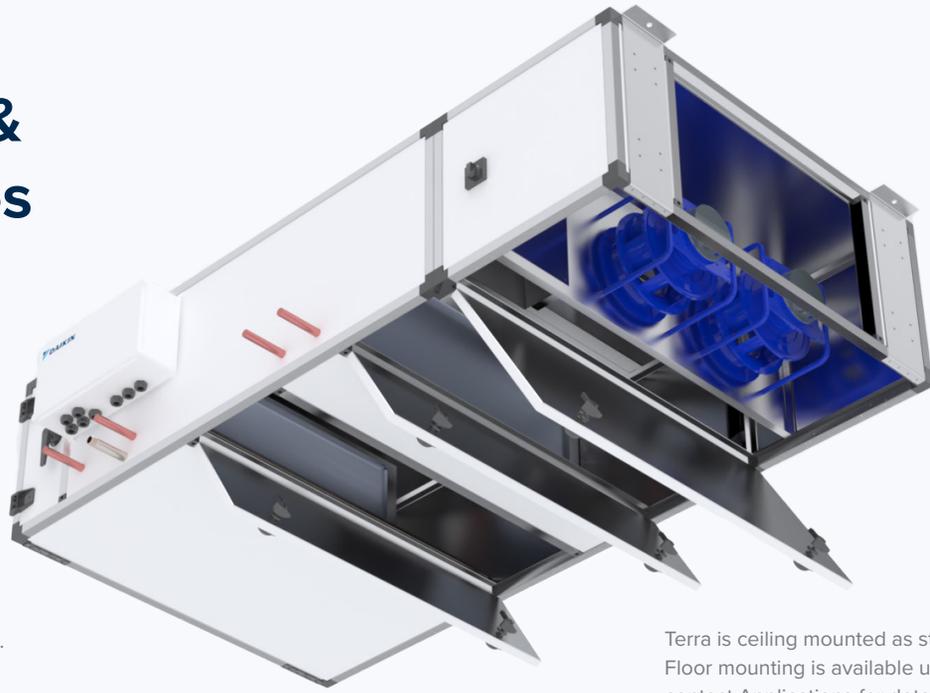


*The optional electric pre-heater and mixing box is not shown.

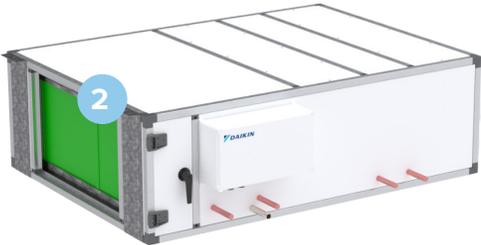
Mounting & Accessories



Units ship with mounting brackets.



Terra is ceiling mounted as standard. Floor mounting is available upon request, contact Applications for details.



Standard Daikin Integration

Terra comes standard with a Daikin-approved DX coil and optional hot gas reheat (HGRH) coil with factory-mounted integration kit(s) and EKEXV expansion valve(s) that are interlaced to match the Daikin outdoor unit.

1. DX Heat Pump

DX-only Terra units use factory-mounted W-Controller(s) and EKEXV(s) paired with Daikin's outdoor heat pump unit.

2. DX + HGRH

Terra units with VRV heat recovery coils use factory-mounted D-Controller(s) and EKEXV(s) paired with Daikin's outdoor heat recovery unit.

3. Electric Pre-Heater

SCR controlled electric coils are available for pre-heating entering air when outdoor temperatures are below 17°F for DX + HGRH applications and 23°F for DX-only applications. Option for single-point power supply to unit from pre-heater.

4. Optional: Temperature, Humidity, and CO2 Room Thermostat

5. Optional: Pressure Sensor

Measures the pressure differential in the ductwork.

6. Optional: Mixing Box

Modulating return and fresh air dampers for mixed air ventilation modes.

Sizing and Performance

DX and Hot Gas Reheat Coil Sizing

Model	Max Airflow cfm	Nominal Capacity Ranges*	
		DX Coil** Tons	HGRH Coil*** Tons
T06	600	3 – 6	1.5
T09	900	3 – 8	1.5 – 2
T12	1200	3 – 12	1.5 – 3
T15	1500	4 – 16	2 – 3
T18	1800	6 – 16	2.5 – 4
T24	2400	6 – 24	3 – 6
T32	3000	10 – 32	5 – 6
T40	3900	12 – 32	6
T48	4800	16 – 32	7.5 – 8

*Using 91/82 design conditions with a Daikin EKEQ Controller for DOAS applications and 81/66 for mixed air applications.

DX ranges include all possible capacities with or without HGRH | *Reheat coil's valve nominal capacity must be ≤ half of the DX coil's valve nominal tonnage.

Unit Dimensions

Model	Unit Width in.	Unit Height in.	DX Only	DX HGRH	Mixing Box	
			Total Length in.	Total Length in.	Width in.	Length in.
T06	30	18	63	87	22	22
T09	36	18	63	87	22	22
T12	42	18	63	87	26	26
T15	48	18	63	87	32	28
T18	48	21	66	90	32	28
T24	60	24	72	90	44	40
T32	48	30	78	114	32	30
T40	60	30	78	114	44	36
T48	72	30	72	108	56	40

Configurations



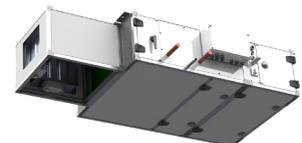
Terra with Factory-Brazed DX Coil



Terra with Factory-Brazed DX and HGRH Coil



Terra with Electric Pre-Heat
Shown with DX only.



Terra with Mixing Box
Available with DX-only and DX+HGRH applications.

Integrated Controls



Terra features an integral control box, all control components come factory-installed.

Standard Control Algorithms

1. Airflow Control

Constant Flow | Constant Pressure | Outside Air Compensation based on Temperature | Demand Control Ventilation based on CO2/VOC

2. Temperature Control

Discharge Air Temperature Control

3. Humidity Control

Humidification | Dehumidification

4. Pre-Heater Control

Electric Pre-Heater

5. Remote Access

Internet Connection | BACnet

Mixed Air Control Algorithms

Mixed Air Ventilation | Night Setback with Optimal Start | VRV Defrost Recirculation | Enthalpy Economizer



Fan Data

Model	Fan Qty.	Nominal Voltage	Phases	MOP (A)	ESP with Dirty Filter*
T06	1	208-240	1	15	1.1
T09	1	208-240	1	15	1.8
T12	1	208-240	1	15	1.2
T15	2	208-240	1	15	1.6
T18	2	208-240	1	15	1.8
	1	208	3	15	3.6
	1	460	3	15	4.8
T24	2	208-240	1	15	1.1
	1	208	3	15	2.0
	1	460	3	15	3.3
T32	1	208	3	15	2.5
	1	460	3	15	4.4
T40	1	208	3	20	2.3
	1	460	3	15	2.7
T48	2	208	3	15	2.7
	2	460	3	15	4.0

@ 1 in P.D. (in.wc) | **ESP measured at 1" SP dirty filter conditions.

FAQ

What are the ideal applications for Terra?

Terra is best suited for applications where energy recovery is not required by code, or it is not possible to get the return air to the air handling unit.

When is an electric pre-heat coil required?

Unless VRV defrost recirculation is selected, an electric pre-heat coil is required when EAT conditions, with or without return air mixing with outside air reach below:

EAT of 17F with D-Controller (DX + HGRH)

EAT of 23F with W-Controller (DX Only)

What material is the Oxygen8 casing made of?

Painted exterior with galvanized interior.

Do you offer non-fused disconnect?

Yes, it is standard. We use a switch disconnect with internal breakers. Fused protection for the disconnect available at a premium for specific SCCR targets above 5 kAIC.

Is a filter sensor provided with the unit?

Yes. A dirty filter sensor is 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?

Oxygen8's DDC controller (Distech) communicates directly with Daikin VRV integration kits (W&D). W-Controllers (DX Applications) are provided analog signals (0-10V) to modulate the temperature and mode control for the Outdoor Unit. D-Controllers (Hot Gas Reheat Applications) have a direct Modbus link to the DDC controller to which Oxygen8 provides temperature and humidity targets.

What sensors come integral to the unit?

There are typically 2 factory-mounted internal temperature sensors. Duct-mounted supply and outdoor air (OA) temperature/humidity (TH) sensors is shipped loose with the unit for dehumidification applications, and one or two additional TH sensors for return and OA, depending on whether one is already included for OA, are included with mixing box applications.

Do you provide mounting brackets?

Yes, all Terra units come standard with angle brackets for ceiling installation.

Does your mixing box use modulating dampers?

Yes, after field-balancing, return air and outdoor air dampers, each with modulating actuators, maintain ventilation air balance.

Specifications

System Overview

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

1

Standard Features

- High Efficiency Variable Speed EC Direct-Drive Motor
- Backward Inclined Fan(s)
- Standard Temperature Sensor (SA)
- Integrated Controls with BACnet IP and BTL-Certification
- Non-Fused Disconnect Switch
- 1" Foam Filled Double-Wall Panels (R6.5)
- Pre-Painted White Exterior Casing
- 22-Gauge Exterior / 20-Gauge Interior Galvanized Steel Panel
- Filter Alarms: Signaled by factory mounted pressure sensors to measure filter pressure drop across filter
- 2" MERV 13 Supply Air Filter
- Removable Hinge Pins for Limited Access
- Sensors for Dehumidification Control

2

Electric Coil Specifications

- SCR Controlled
- Non-Fused Disconnect Switch
- Optional single-point power supply from coil to unit

3

Installation Options

- Horizontal (Ceiling Mount) – Brackets included
- Orientation: Right Hand or Left Hand
- Access Options: Bottom Doors

4

Warranty

- 24 Months from start-up

5

VRV Integration

- Factory Mounted DX Coils and Factory-Brazed Expansion Valve kit to the Coil
- Factory Mounted Reheat Coils and Factory-Brazed Expansion Valve kit to the Coil
- Factory Mounted and Wired W- or D-Controller

6

Options

- Mixing box powered by unit for recirculation and mixed air ventilation
- 3- or 5-Year Warranty Add-On
- Optional Sensors: Humidity, Pressure, CO2
- Panel blocks for removable access panel option by special request outside of Selection Software
- Floor mounting with access doors on top, by special request only at a premium

