OXYGEN 8

VENTUM

Installation, Operation, and Maintenance

135003-002

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135003-002

1.0 GENERAL INFORMATION

This manual includes important instructions for safe connection of the Energy Recovery Ventilator (ERV). Before connecting the unit, please read carefully and follow the instructions.

The manufacturer reserves the right to make changes, including changes in the technical documentation, without previous notification. Please keep this manual for future reference. Consider this manual a permanent part of the product.

This manual will show the manufacturers' recommended installation method. Please note that local codes and regulations may override these recommendations. The installation must follow local codes and standards.

The National Electric Code (NEC), the National Fire Protection Agency (NFPA), and the Canadian Electrical Code (CEC) must be followed. Installation of this product must be performed by a qualified and accredited professional in conformance with local and national codes, standards and licensing requirements.

Caution: This sign indicates apotentially hazardous situation, which may result in minor or moderate injury if not avoided. It may also alert against unsafe practices.

Warning: This sign indicates a situation that may result in equipment or property damage accidents.

Danger: This sign indicates a potentially hazardous situation, which could result in death or serious injury if not avoided.

2.0 SPECIFICATIONS

2.1 System Overview

Standard units come complete with ERV or HRV energy recovery option, EC fans, 2” filters, fully integrated controls and casing as outlined in the spec below.

2.2 General Specifications

Standard Features

Certification
AHRI and UL Certified

Casing
Double-wall 1” insulation for compact indoor models

22 gauge galvanized steel inner panel with 20 gauge pre-painted white outer panel

Electrical and Controls
Configurable integrated controller with BACNet compatibility

Single point power

Filters
2” pleated OA MERV 13, RA MERV 8

Blowers and Motors

High-efficiency variable speed EC direct drive motor
Backward inclined fan

Warranty
Core - 5 years from shipping

Unit - 2 years from shipping

Mounting
Ceiling mount only.

Options

Integrated Heating and Cooling
Hydronic, Electric, DX Coils (using EEV kit) and pre-heat available

Bypass Damper
Bypass economizer, bypass defrost

Shut Off Damper
Outdoor and exhaust air dampers (unit or duct mounted)

Frost Control
Electric Preheat

Warranty
10-year add-on available

3.0 CONFIGURATION CHART

The following is a complete description of the packaged model numbers and nomenclature.

Main Code:
VENTUM_XXX_XXX_X_X_X_XX_XX_XX_
XXXX_XX_XX_X VENTUM_H05_ERV_B_I_
R_S1_DP_OX_2081_13_08_A

Sales Drawings:
VENTUM_H05_ERV_B_I_R_S1_DP_OX_A

Size
H05, H10, H15, H20, H25, H30

Heat Exchanger
Latent - ERV
Sensible - HRV

Location
Indoor - I

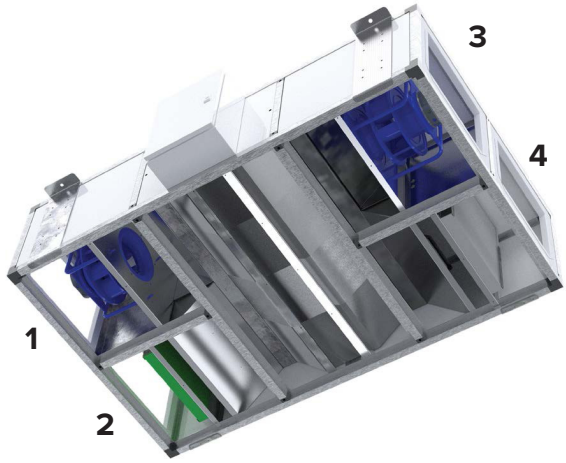
Bypass
Bypass - B
Standard - S

Handing
Right Hand - R
Left Hand - L

Fan Position
FP1 [Fans Front] - S1
FP2 [Fans Rear] - S2

Condensate Drain Pan in Exhaust Air Path
Not Included - ND
Included - DP

Coupled Accessories
None - NA
Outdoor Air Standard - OA



Outdoor Air and Supply Air Standard - OS

Outdoor Air Standard and Supply Air Extended - OX

Supply Air Standard - SA

Supply Air Extended - SX

*Extended size required for cooling applications

Power
208/60/1 - 2081
240/60/1 - 2401
208/60/3 - 2083
460/60/3 - 4603

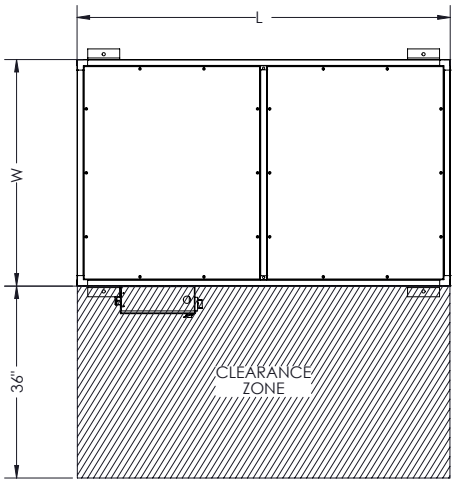
Outdoor Air Filter
MERV8 - 08
MERV11 - 11
MERV13 - 13
MERV14 - 14

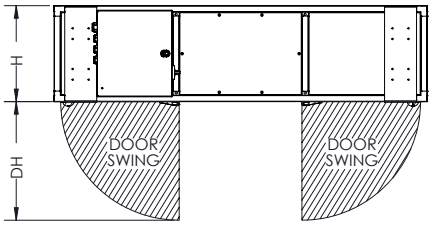
Return Air Filter
MERV8 - 08
MERV11 - 11
MERV13 - 13
MERV14 - 14

Version (Generation)
A, B, C....

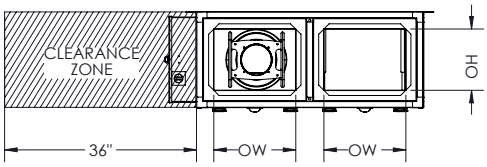
4.0 UNIT SPECIFICATIONS

4.1 Dimensions





FRONT VIEW



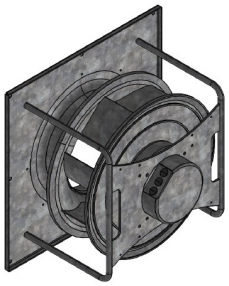
RIGHT VIEW

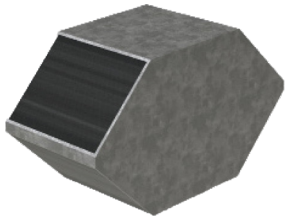
Size	L	W	H	DH	OH	OW	RDC-OW	EXT-OW
Description	**Length**	**Width**	**Height**	**Door Height**	**Opening Height**	**Opening Width**	**Reduced Opening Width**	**Extended Opening WIdth**
H05	70	42.5	18	22.25	11.5	15.375	8.125	22.5
H10	70	62.5	18	22.25	11.5	25.375	21.125	29.5
H15	78	62.5	21	24.25	14.5	25.375	20.125	30.5
H20	78	77.5	21	24.25	14.5	32.8125	26.125	39.5
H25	102	62.5	32	30.25	25.5	25.3125	21.125	29.5
H30	102	77.5	32	30.25	25.5	32.9375	27.125	38.5

* All dimensions are in inches
* If a unit has a baserail, add 4 inches to Y (OVERALL HEIGHT)
* RDC-OW: Reduced Opening Width (opposite side of cooling coil)
* EXT-OW: Extended Opening WIdth (coupled cooling coil)

4.2 Weights

For special indoor unit orders requiring the fan cabinet to be split from the core cabinet, some sample weights are as follows. For these and other model sizes, weights will be provided with the submittal.





Model	**Fan (A)** lbs.	**Core (B)** lbs.	**Total Weight** lbs.
H05	27	13	450
H10	28.7	13	620
H15	37.5	22	720
H20	37.5	22	820
H25	48.5	64	1130
H30	48.5	64	1300

4.3 Filters

To achieve required sizing, some Ventum units use two standard-sized filters butted against each other. Both filter sized will need to be ordered to replace the filters.

Ventum units come with one or two standard-sized 2” filters per airstream. If two filters per airstream are required, the two must be butted end-to-end within the unit filter rack in both airstreams. The listed filter size(s) shall be ordered from a certified filter vendor to replace the filters.

Filter Ratings		
	Outside Air (OA)	**Return Air (RA)**
Filter Rating	MERV 13	MERV 8
Thickness	2 IN.	2 IN.

Filter Sizing

	Filters Per Airstream	Filter 1 Nominal Size (in.)	Filter 2 Nominal Size (in.)	Total Filter Qty
H05	1	16x16		2
H10	1	25x16		2
H15	1	25x18		2
H20	2	16x16	20x16	4
H25	1	25x25		2
H30	2	20x25	16x25	4

4.4 Electrical Information

Size	Airflow	Nom. V	Phases	Motor (kW)	SA Fan Qty	SA Fan FLA	FLA	MCA	MOP (A)	SCCR (kA)
H05	600	208/240	1	0.50	1	2.50	5.29	5.91	15A	5
H10	1000	208/240	1	0.78	1	3.90	8.09	9.06	15A	5
H15	1350	208	3	2.00	1	6.00	12.33	13.83	15A	5
H15	1350	460	3	2.50	1	4.00	8.14	9.14	15A	5
H20	1800	208	3	2.00	1	6.00	12.33	13.83	15A	5
H20	1800	460	3	2.50	1	4.00	8.14	9.14	15A	5
H25	2250	208	3	2.70	1	8.60	17.53	19.68	25A	5
H25	2250	460	3	3.70	1	5.80	11.74	13.19	15A	5
H30	3000	208	3	2.70	1	8.60	17.53	19.68	25A	5
H30	3000	460	3	3.70	1	5.80	11.74	13.19	15A	5

*Standard SCCR without modifying disconnect switch; additional fusing to increase SCCR may be requested for units with 3-phase power only.

MCA Minimum Circuit Ampacity
MOP Maximum Over Current Protective Device/Recommended Fuse Size Data is relevant for all units except single-circuit power units with 1 or 2 electric heaters; in this case, please refer to the project specific submittal.

24V Transformer Ratings			
Fan power [V/Ph]	**Fuse Size**	**Qty.**	**FLA**
208/1	3/4	2	0.29
240/1	3/4	2	0.29
208/3	3/4	2	0.33
460/3	3/10	2	0.14

The table above summarizes the low voltage transformer protection and current based on unit voltage and phases.

Fan Data

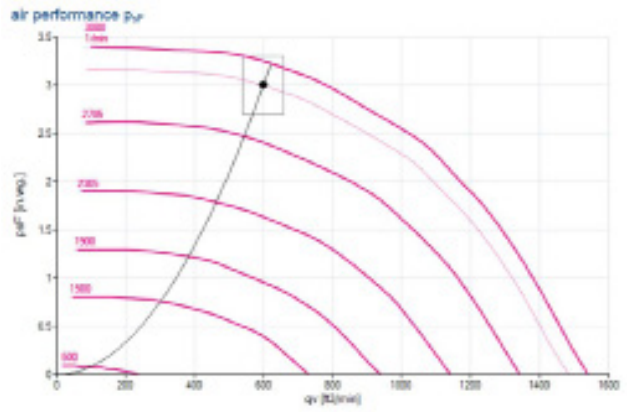
Model	CFM	Nom. Voltage / FLA (A)	FLA (A)	KW	SP "Wg
H05	600	240 / 1~ / 60 / 2.5	1.8	0.4	1.25
H10	1000	240 / 1~ / 60 / 3.9	2.8	0.6	1.25
H15	1350	460 / 3~ / 60 / 3.2	4.0	1.4	3
H15	1350	208 / 3~ / 60 / 3.2	6.0	1.4	3
H20	1800	460 / 3~ / 60 / 3.2	4.0	1.7	3
H20	1800	208 / 3~ / 60 / 5.0	6.0	1.6	3
H25	2250	460 / 3~ / 60 / 4.6	5.8	2.1	3
H25	2250	208 / 3~ / 60 / 7.2	8.6	2.1	3
H30	3000	460 / 3~ / 60 / 4.6	5.8	2.7	3
H30	3000	208 / 3~ / 60 / 7.2	8.6	2.7	3

4.5 Fan and Core Performance

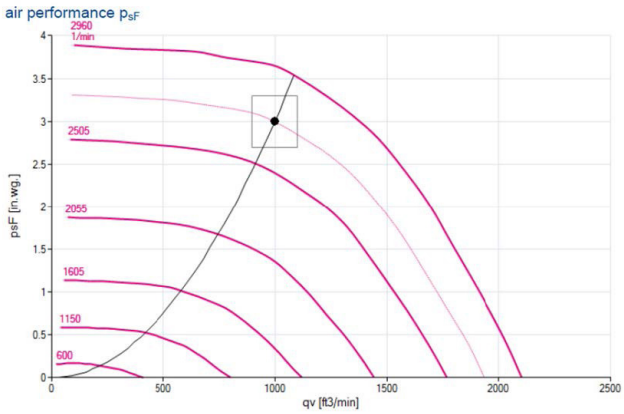
ERV Performance									
Model	**Airflow (CFM)**	**SRE Bypass**	**SRE No Bypass**	**LRE Bypass**	**LRE No Bypass**	**TRE Bypass**	**TRE No Bypass**	**PD (Supply, Return) Bypass**	**PD (Supply, Return) No Bypass**
H05	325 600	79.4 72.5	82.6 75.7	74.4 61.4	79 67.7	76.3 65.5	80.4 70.8	0.25 0.66	0.16 0.42
H10	325 600	84.8 72.5	86.2 74.5	81.9 61.4	84 65.3	83 65.6	84.8 68.6	0.1 0.66	0.07 0.5
H15	650 1350	79.4 71.5	82.6 74.5	74.7 59.5	79.2 65.5	76.5 64.1	80.5 68.9	0.31 0.92	0.19 0.6
H20	1050 1800	77.3 71.5	79.8 73.8	71.1 59.5	75.2 64.1	73.5 64.1	77 67.8	0.41 0.92	0.29 0.66
H25	1375 2250	78.2 73	81.3 76	71.9 62.5	76.7 68	74.3 66.6	78.5 71.1	0.49 0.98	0.33 0.66
H30	1850 3000	78.1 73	80.5 75.3	71.7 62.5	75.5 66.8	74.2 66.6	77.5 70	0.5 0.98	0.36 0.72

HRV Performance							
Model	**Airflow (CFM)**	**SRE Bypass**	**SRE No Bypass**	**TRE Bypass**	**TRE No Bypass**	**PD (Supply, Return) Bypass**	**PD (Supply, Return) No Bypass**
H05	325 600	84.1 80.2	86.1 81.9	56.4 53.7	57.5 54.9	0.23 0.62	0.13 0.4
H10	325 600	87.4 80.2	88.5 81.3	58.6 53.7	59.3 54.4	0.07 0.62	0.03 0.47
H15	650 1350	84.4 79.7	86.3 81.3	56.5 53.3	57.8 54.4	0.27 0.81	0.17 0.53
H20	1050 1800	83 79.7	84.7 80.9	55.6 53.3	56.7 54.2	0.36 0.81	0.25 0.58
H25	1375 2250	84 81.2	85.7 82.7	56.2 54.4	57.3 55.4	0.42 0.84	0.28 0.56
H30	1850 3000	83.9 81.2	85.3 82.4	56.1 54.4	56.1 54.4	0.42 0.84	0.31 0.61

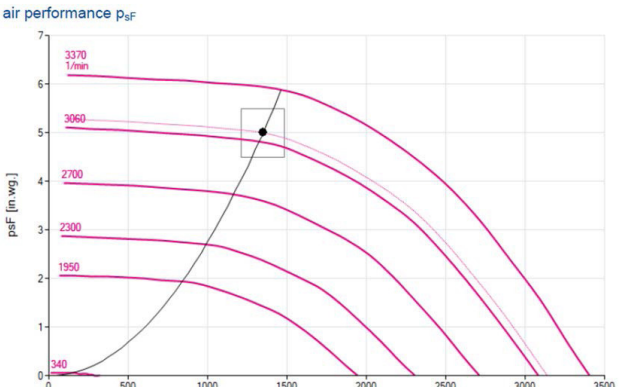
Air Performance



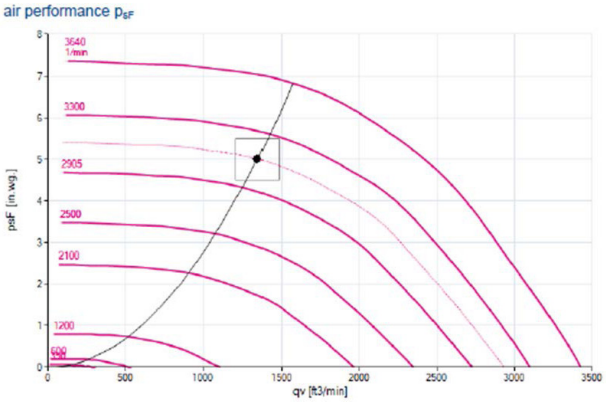
H05 - 600 CFM - 240 / 1~



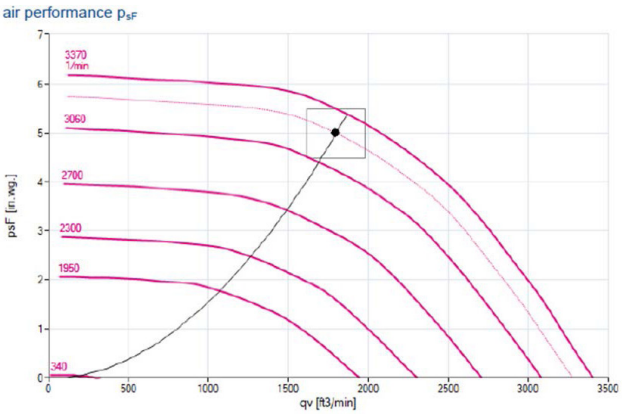
H10 - 1000 CFM - 240 / ~1



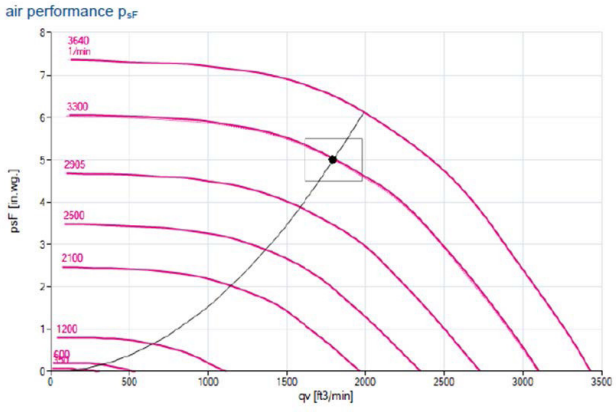
H15 - 1350 CFM - 460 / 3~



H15 - 1350 CFM - 208 / 3~

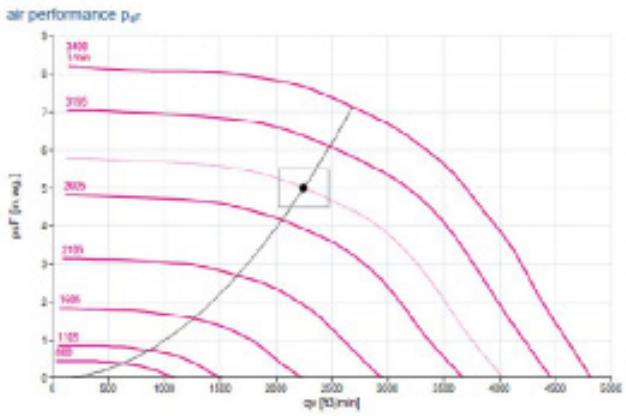


H20 – 1800 cfm – 460 / 3~

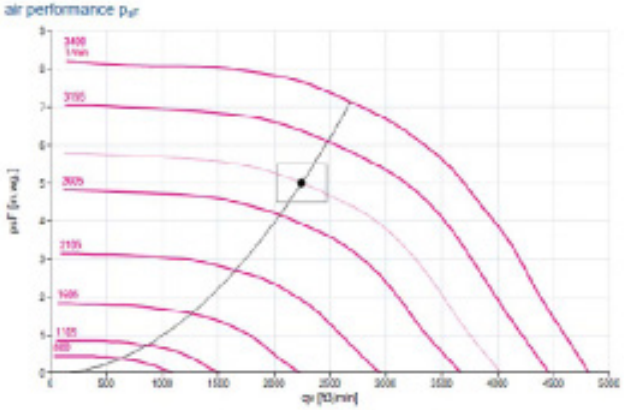


H20 – 1800 cfm – 240 / 3~

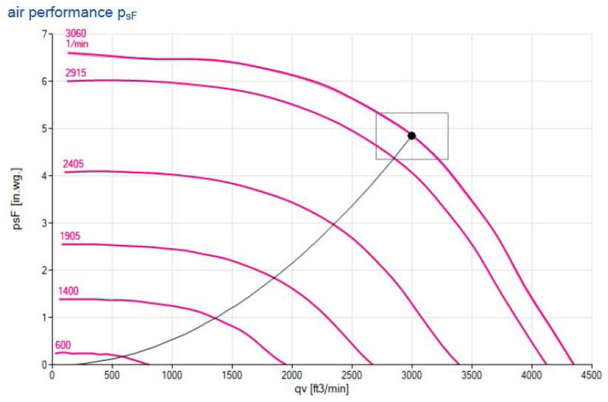
Air Performance



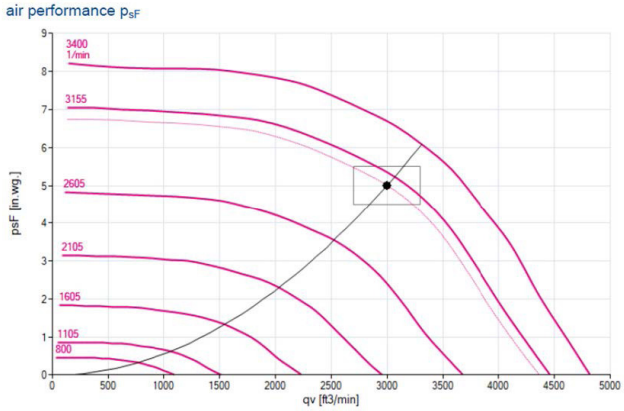
H25 - 2250 CFM - 460 / 3~



H25 - 2250 CFM - 240 / ~3



H30 - 3000 CFM - 460 / 3~



H30 - 3000 CFM - 240 / 3~

5.0 INSTALLATION

5.1 Unwrapping the Product

When removing the shrink wrap, be cautious with knives and sharp tools to prevent scratching the paint. The HMI, temperature + humidity sensor, external duct pressure sensor and all other optional field components will be found in the electrical box or fan compartment. They are secured there for transport and to easily find them on the job site. Pallets are two-way entry; therefore, fork extenders or 8-foot forks must be used when moving a palletized unit.

Units are palletized and protected by a skeletal crate of heat-treated wood. These crates are constructed using nails; therefore, to unpack the unit, carefully use a crowbar or reciprocating saw to detach each panel. Additional bracing used to prevent the unit from sliding on the pallet must also be removed.

Once external packaging is removed, carefully remove the stretch wrap and cardboard covering the unit. It is better to use scissors rather than a knife to avoid scratching the unit.

External Pipes are protected by wood boxes that are secured with Poly Strapping and must also be removed. If a unit has a baserail, it will be screwed down directly to the pallet.

Packaged Unit

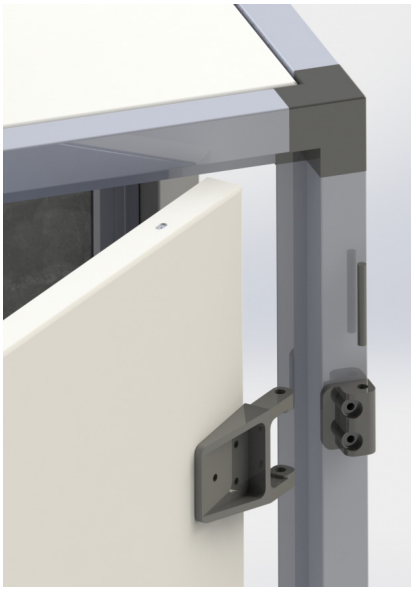
External Pipes Protected by Wood Boxes

5.2 Lifting Requirements

Units can be lifted by mounting angles. Lifting directly from the frame is not recommended.

5.3 Access Requirements

Unit with doors open



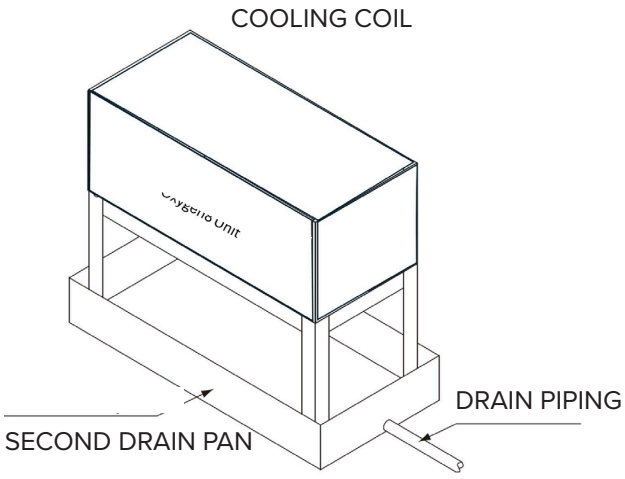
Door with removed hinge pin

Top of Unit

The National Electrical Code (NEC) stipulates that there must be a minimum of 36 inches of clearance from an electrical connection. The installing contractor must ensure there is at least 36 inches of clearance perpendicular to the top of the electrical box.

3.3 Dehumidification Cooling Coil Condensate Protection

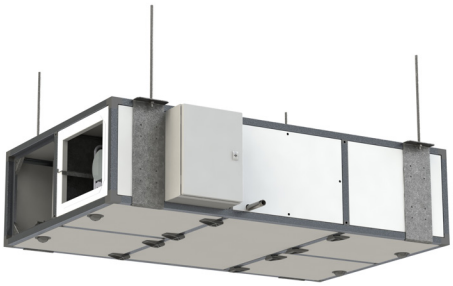
When installing a cooling and reheat coil in unconditioned spaces, if high humidity levels are anticipated, it is recommended to add a layer of insulation to the exterior of the unit body. Use glass wool or polyethylene foam with a thickness of at least 2 inches, ensuring it fits within the installation space without blocking or inhibiting necessary access to the unit or airflow. During cooling operation, condensation may form on the outside of the product cabinet. If reinforcing the insulation is not feasible in a humid installation environment, it is recommended to provide and install a second drain pan below the coil modules (supplied and installed by others).



5.5 Installation

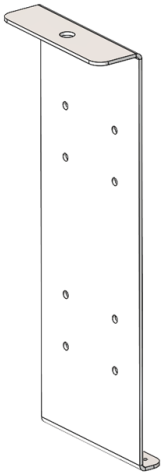
5.5.1 Ceiling Mount

Ventum is available exclusively for ceiling mount/horizontal applications with inner and outer brackets only. The hanging brackets are supplied loose with the necessary hardware to install them. They are not shipped assembled due to the variability of installation access on job sites.Each hanging bracket is composed of two pieces: an inner component and an outer component. The units are designed to have four sets of brackets to support the unit.



Ceiling Mounted Unit

Warning: The unit must be installted with both the inner and outer bracket. Each unit must also have all four brackets installed to meet these guidelines



Outer Bracket

Inner Bracket

Note: Depending on the ducted opening location selected during the design phase, the location of the brackets will vary. Please consult your submittal drawings for specific locations.

Assembly of Hanging Brackets

1. Locate the position of the brackets on the outside of the unit.

2. Mark the 8 hole locations and drill to allow for the ¼" bolt.

3. Assemble the hanging bracket by aligning the 8 holes of the outer bracket through the unit and with the inner bracket.

4. Install the 8 bolts.

5. Install 4 tek-screws in the flange portion of the inner bracket and secure it to the top casing of the unit.

6. Install 4 tek-screws in the lower flange of the outer bracket to secure it to the bottom frame of the unit.

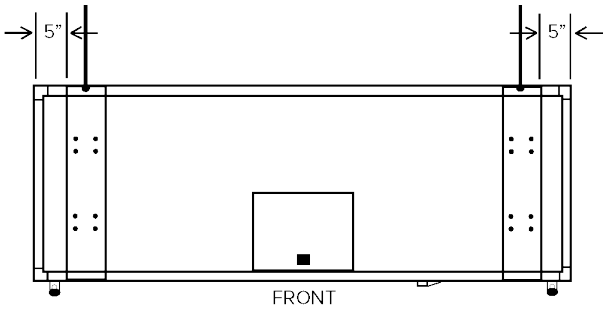
7. Repeat steps 1 through 6 for the remainder of the brackets.

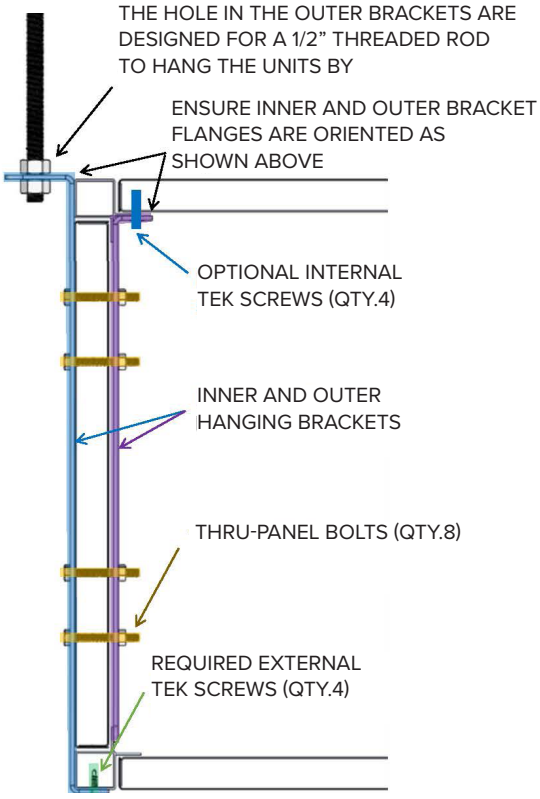
8. The hole in the outer brackets are designed for a ½" threaded rod to hang the units by.

Caution: Do not over tighten and crush the panel.

Note: 32 x ¼" bolts, 32 x ¼" lock nut, 32 x ¼" washers and 64 x ¼" washers have been provided with the unit.

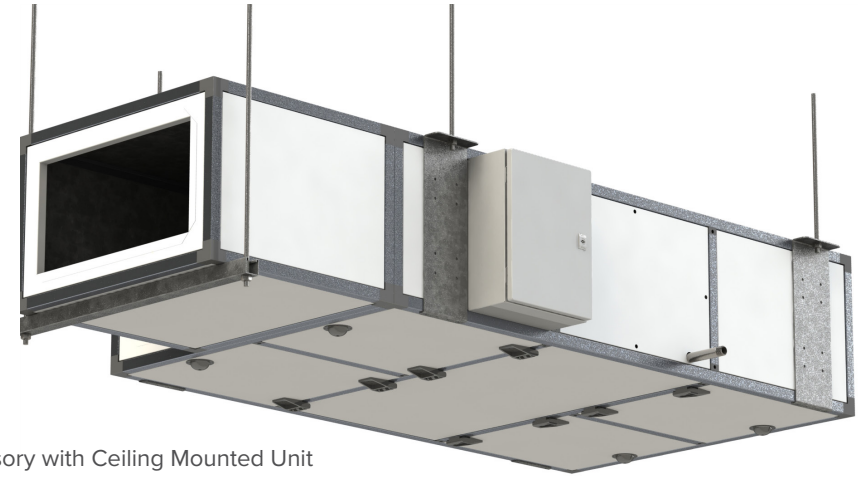
Note: The inner component should be oriented so that its flange is pointing to the ceiling, and the outer bracket has the single hole pointing to the ceiling.



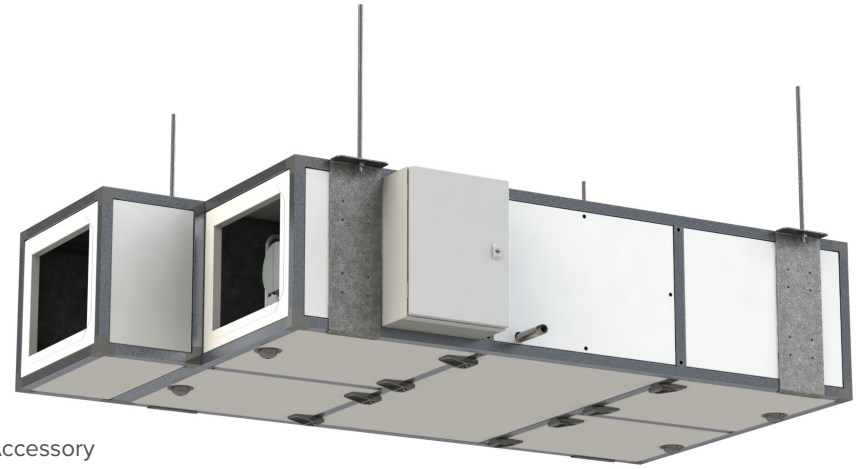


5.6 Installation of Accessories

5.6.1 Coupled Accessories

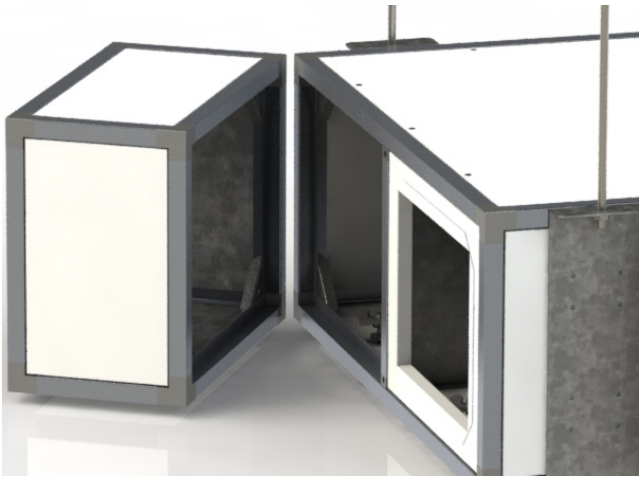


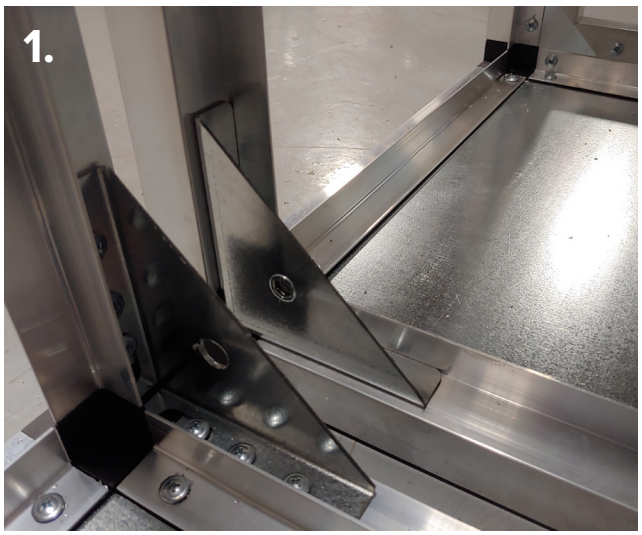
Coupled Accessory with Ceiling Mounted Unit

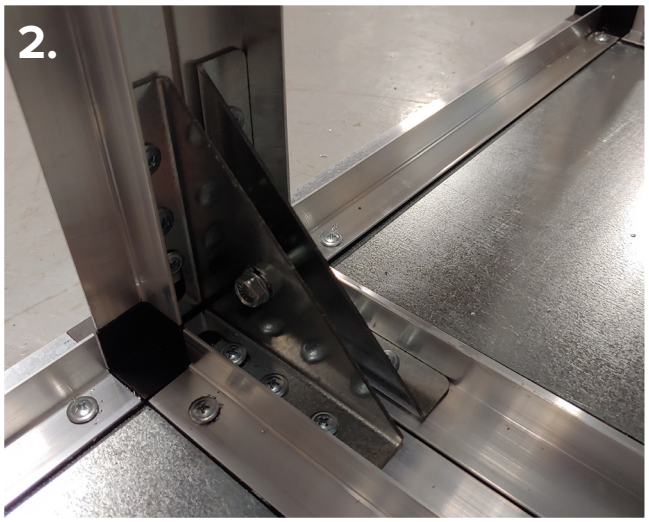


Mounted Coupled Accessory

Corner brackets come pre-installed with each Ventum unit. Accessories should be independently supported with Unistrut on the end farthest from the unit. Base mounted accessories that are connect to a duct connection in the lower position of the unit will come with matching base rails. Accessories that are to be connected to a duct connection in the upper position will need to be supported externally.

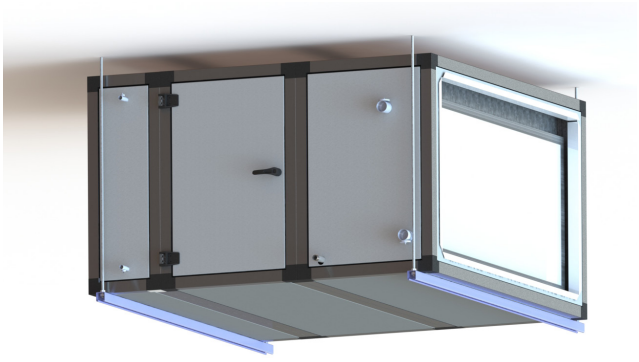






5.6.2 Decoupled Accessories

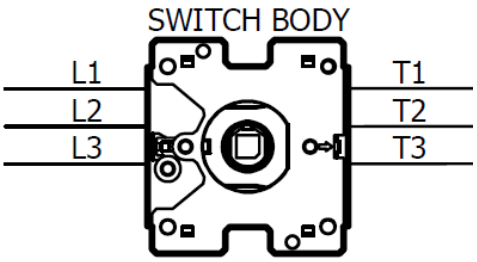
Ceiling hung decoupled accessories will not come with hanging brackets and can be sup-ported in the ceiling with threaded rod or equivalent.

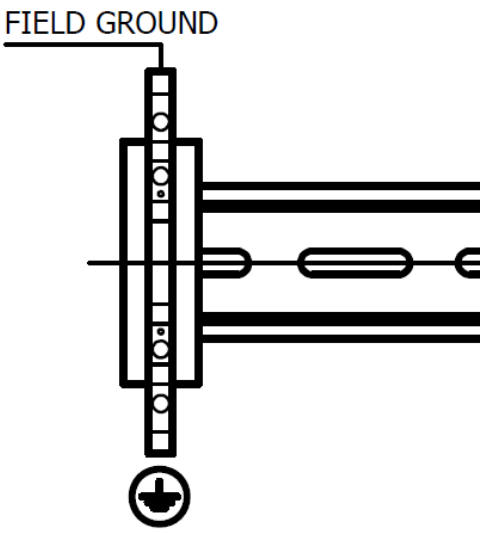


6.0 ELECTRICAL HOOKUPS

Warning: Hazardous voltage. Disconnect all electrical power, including remote disconnects and discharge all motor start/run capacitors before servicing. Follow proper lockout/tagout procedures to ensure the power cannot be accidentally re-engaged

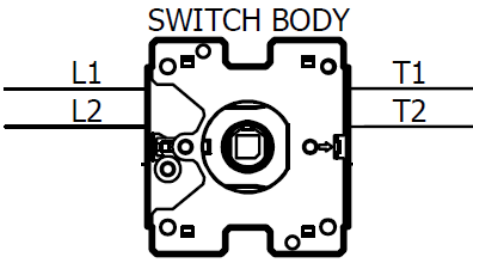
3 phase, 4 wire, 208V, 460V -10% - +15%, 60Hz Recommended fuse diagram





Note: Larger units are complete with a grounding lug that is used in place of the ground terminal shown above.

1 phase, 3 wire, 240V -10% - +15%, 60Hz Recommended fuse diagram



6.1 Electrical Control Box Connection Guides

1. **Verification of Unit Compatibility**
   Prior to installation, ensure that the information on the unit's nameplate matches the power supply specifications. In cases where single-point power wiring connections are specified, the power source for the external control box shall originate from the electrical heater. Make all necessary connection terminations to the primary terminal block. Detailed wiring diagrams, specific to the unit, can be found in this manual, illustrating both factory and field wiring configurations.

2. **Overcurrent and Short Circuit Protection**
   All units require the provision of field-supplied electrical overcurrent and short circuit protection. Ensure that the selected protective device does not exceed the Maximum Overcurrent Protection (MOP) specified on the unit's nameplate. Local electrical codes may also mandate the presence of a disconnect switch within visible range of the unit. However, it is advisable not to install field-supplied overcurrent protection or disconnect switches on the unit itself.

3. **External Control Panel**
   In cases where an external control box is utilized, properly route the conduit away from potential hazards, sharp edges, or occupied areas, and ensure it is securely fastened at intervals not exceeding 3 feet unless otherwise specified by local codes and standards. Use the appropriate hardware for the conduit diameter and appropriate fasteners for anchoring into the wall material.

4. **Compliance with Electrical Codes**
   It is imperative to adhere to the access clearance, mounting height, and other installation requirements stipulated by the National Electrical Code (NEC) and any applicable local codes and standards for safety and ease of maintenance.

5. **Flex Conduit**
   The unit is equipped with the necessary length of flexible conduit for connecting the external control box to the unit. It is crucial not to modify or extend this conduit.

Note: Flex conduit provided is not plentum rated.

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