



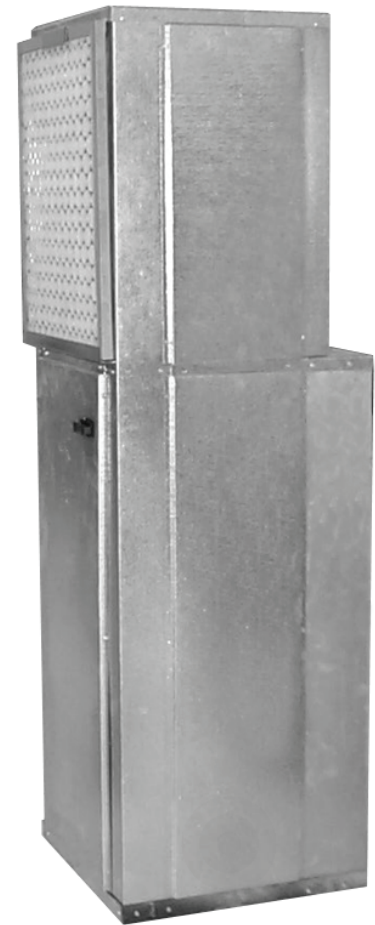
VTC / VTH

VERTICAL TERMINAL AIR CONDITIONER AND HEAT PUMP

COOLING: 8,900 - 23,100 BTU/H
HEAT PUMP: 8,500 - 22,400 BTU/H
ELECTRIC HEAT: 5,100 - 34,100 BTU/H
UP TO 3.0 COP

Product Features

- Chlorine-free R-410A refrigerant
- Evaporator coil freeze protection
- Compressor restart delay
- Low-ambient lock-out
- Adjustable fresh air damper
- Wall-mount thermostat
- Electrical disconnect
- Random unit restart
- Front desk control
- Fan on/off delay
- Adjustable fresh air damper
- Completed insulated cabinet for quiet operation
- "Ductable" to multiple rooms
- Full-length wall panels available (eliminates closet door)



3/4 TON THROUGH 2 TONS



* Complete warranty details available from your local dealer or at www.amana-ptac.com.

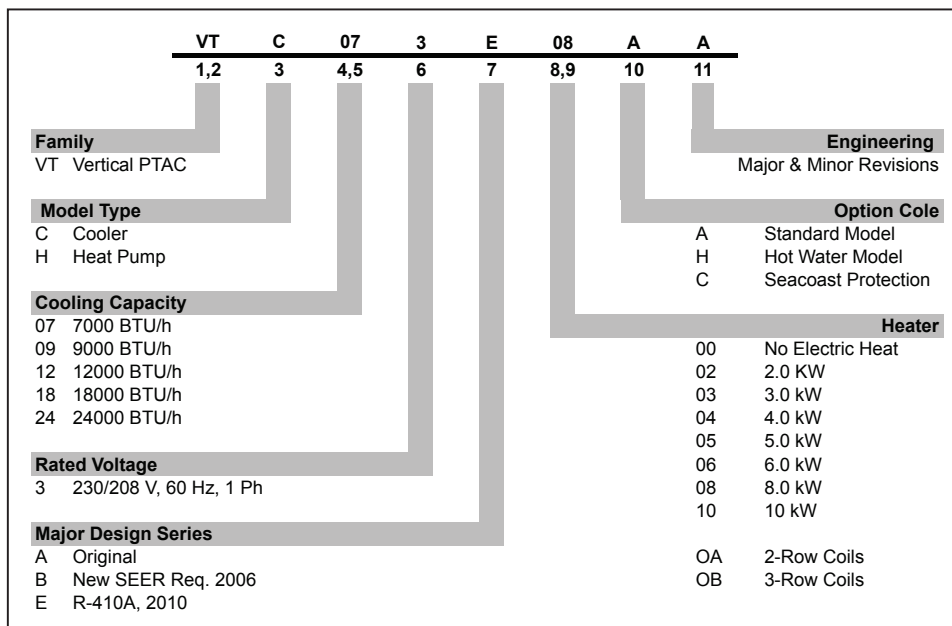
FEATURES

- **FRONT DESK CONTROL**
Enable or disable each unit from the front desk to save energy used to condition unoccupied rooms.
- **FAN DELAY**
Allows the evaporator blower to continue running for up to 45 sec. after the thermostat is satisfied, maximizing cooling performance.
- **RANDOM RESTART**
Protects against damage to electrical circuits by preventing all units from starting at one time after power disruption. Random restart occurs in 3 to 4 min.
- **EVAPORATOR COIL FREEZE PROTECTION**
Prevents ice build-up on coils and compressor damage during the cooling mode. Attached to the coil, a temperature sensor will de-energize the compressor when freezing conditions are detected and re-energize the compressor when the coil warms up again.
- **DUCTABLE RETURN AIR**
Permits the connection of return air ductwork using the provided tabs (usually not required) on the inlet of the evaporator coil. (Figure 5, pg. 9)
Note: Duct systems and registered sizes must be properly designed for the CFM and external static pressure rating of the unit.
- **ADJUSTABLE OUTSIDE AIR (MANUAL)**
Meets code requirements for outside air introduction. The air vent (Figure 6, pg. 9) allows up to 50 CFM of outside air to be introduced into the equipment closet. The air mixes with return air entering the closet through the return air grille.
Note: Negative pressure can be introduced through an external source to raise the 50 CFM level. Consult with the factory.
- **COMPRESSOR RESTART DELAY – (3 MIN.)**

Ensures that system pressure equalizes before the system restarts, so compressor life is extended.

- **LOW AMBIENT LOCKOUT**
Locks out compressor at 40°F and below, thus extending compressor life.
- **ELECTRICAL DISCONNECT**
Makes service and maintenance easier. (Factory-installed)
- **FILTER BRACKETS**
Installed over evaporator coil and shipped with throw-away filter (20" x 24" x 1"; see Figure 5, pg. 9). (Field-installed)
- **UNIQUE "SLEEVE DRAIN" CONDENSATE SYSTEM**
(Factory-installed) – Connects evaporator drain pan to a vertical pipe connection in the unit's base pan via a drain line. Evaporator condensate is delivered from the unit to a catch tray in the wall sleeve and exits the sleeve through the 3/4" male NPT fitting to allow complete piping of the drain to a condensate riser during the rough-in stage. This eliminates condensate connection problems when connecting the HVAC drain to the riser after the HVAC unit is installed in the closet. Unit can be removed for service without disconnecting the condensate piping. Additional closet space is not needed to connect the drain.
- **SECONDARY OVERFLOW**
Should the primary condensate riser become clogged, water will fill the catch tray and be diverted through the sleeve to the exterior of the building, ensuring no leakage into the interior area. Rain water entering the sleeve is automatically diverted to the building exterior.

NOMENCLATURE



VTC MODEL SPECIFICATIONS—COOLING/ELECTRIC HEAT

ELECTRICAL DATA (208/240V-1 PH-60HZ)

MODEL	ELECTRIC HEAT DATA						BLOWER DATA		CONDENSER DATA				MIN. CIRCUIT AMPS		MAX. CIRCUIT PROTECTION		SHIP WEIGHT (LBS.)
	kW		BTU/H		HEATING AMPS		EVAPORATOR MOTOR		COMPRESSOR		CONDENSER MOTOR		208V	230V	208V	230V	
	240V	208V	240V	208V	240V	208V	AMPS	HP	RLA	LRA	FLA	HP					
VTC093E-0	0	0	0	0	0	0							7	7	15	15	245
VTC093E-2	2	1.5	6,800	5,100	9	7.9	0.7	⅝	4.5	25.0	0.5	⅓ ₁₅	10	12	15	15	
VTC093E-3	3	2.3	10,200	7,700	13.2	11.5							15	17	15	20	
VTC093E-4	4	3	13,600	10,200	17.4	15.1							19	22	20	25	
VTC123E-0	0	0	0	0	0	0							9	9	15	15	245
VTC123E-2	2	1.5	6,800	5,100	9	7.9							10	12	15	15	
VTC123E-3	3	2.3	10,200	7,700	13.2	11.5	0.7	⅝	5.6	29.0	0.5	⅓ ₁₅	15	17	15	20	
VTC123E-4	4	3	13,600	10,200	17.4	15.1							19	23	20	25	
VTC123E-5	5	3.8	17,000	12,800	22	19							24	28	25	30	
VTC183E-0	0	0	0	0	0	0							13	13	20	20	255
VTC183E-2	2	1.5	6,800	5,100	9.2	8.1							13	13	20	20	
VTC183E-3	3	2.3	10,200	7,700	13.4	11.7							15	17	20	20	
VTC183E-4	4	3	13,600	10,200	17.5	15.3	0.9	⅝	6.5	43.0	0.7	⅓ ₁₀	20	22	25	25	
VTC183E-5	5	3.8	17,000	12,800	22	19							24	28	25	30	
VTC183E-6	6	4.5	20,500	15,350	26	23							29	33	30	35	
VTC183E-8	8	6	27,300	20,500	34	30							38	43	40	45	
VTC183E-10	10	7.5	34,100	25,600	43	37							47	54	50	60	
VTC243E-0	0	0	0	0	0	0							20	20	30	30	255
VTC243E-3	3	2.3	10,200	7,700	14	12.3							20	20	30	30	
VTC243E-4	4	3	13,600	10,200	18.2	15.9							22	24	30	30	
VTC243E-5	5	3.8	17,000	12,800	22	20	2.6	¼	11.5	54.0	2.3	¼	26	29	30	30	
VTC243E-6	6	4.5	20,500	15,350	27	23							31	35	35	40	
VTC243E-8	8	6	27,300	20,500	35	30							40	45	40	50	
VTC243E-10	10	7.5	34,100	25,600	43	38							49	55	50	60	

COOLING PERFORMANCE DATA

MODEL	STANDARD RATINGS ¹	
	BTU/H	EER
VTC093E	8,900	9.0
VTC123E	11,500	9.0
VTC183E	17,600	9.0
VTC243E	23,100	9.0

¹ Tested in accordance with ARI Standard 310/380-93 at 95°F DB/75°F WB outdoors and 80°F DB/67°F WB indoors.

VTC MODEL SPECIFICATIONS—COOLING/ELECTRIC HEAT (CONT.)

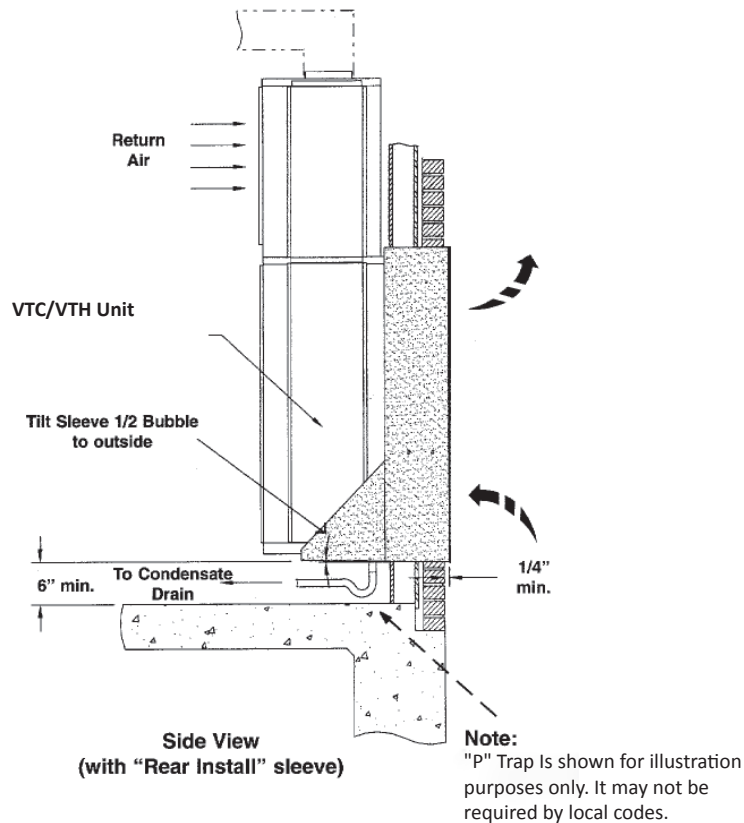
BLOWER DATA

MODEL	MOTOR SPEED ¹ CONNECTION	CFM VS. EXTERNAL STATIC PRESSURE							
		0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40
VTC093E	High	490	475	460	450	435	420	400	---
	Med	375	360	350	340	330	315	300	---
	Low	290	280	270	260	240	230	215	---
VTC123E	High	490	475	460	450	435	420	400	---
	Med	375	360	350	340	330	315	300	---
	Low	290	280 </td <td>270</td> <td>260</td> <td>240</td> <td>230</td> <td>215</td> <td>---</td>	270	260	240	230	215	---
VTC183E	High	660	655	650	645	640	635	625	610
	Med	580	578	575	570	565	560	550	540
	Low	485	480	475	470	465	460	455	450
VTC243E	High	1,030	1,000	980	950	920	890	860	820
	Med	880	860	840	820	790	760	730	710
	Low	770	760	750	740	720	700	680	660

Notes:

- (1) VTC12, 18- and 24-blower motors are factory-wired for medium (cooling) and low (heating) fan operation. VTC09 is low speed for both.
- (2) VTH12, 18- and 24-blower motors are factory-wired for medium (cooling/heat pump) and low (electric heat) speed operation. VTH09 is low speed in all modes.

DIMENSIONAL DATA



*See Wall Sleeve Installation Instructions for complete details.

VTH MODEL SPECIFICATIONS—COOLING/ELECTRIC HEAT

ELECTRICAL DATA (208/240V-1 PH-60HZ)

MODEL	ELECTRIC HEAT DATA						ELOWER DATA		CONDENSER DATA				MIN. CIRCUIT AMPS		MAX. CIRCUIT PROTECTION		SHIP WGT (LES)
	KW		ETU/H		HEATING AMPS		EVAPORATOR MOTOR		COMPRESSOR		MOTOR		208V	230V	208V	230V	
	240V	208V	240V	208V	240V	208V	AMPS	HP	RLA	LRA	FLA	HP					
VTH093E	2	1.5	6800	5,100	9	7.9							10	12	15	15	245
	3	2.3	10,200	7,700	13.2	11.5	0.7	1/8	4.5	25	0.5	1/15	15	17	15	20	
	4	3	13,600	10,200	17.4	15.1							19	22	20	25	
VTH123E	2	1.5	6800	5,100	9	7.9							10	12	15	15	245
	3	2.3	10,200	7,700	13.2	11.5	0.7	1/8	5.6	29	0.5	1/15	15	17	15	20	
	4	3	13,600	10,200	17.4	15.1							19	23	20	25	
	5	3.8	17,000	12,800	22	19	24	28	25	30							
VTH183E	2	1.5	6,800	5,100	9.2	8.1							13	13	20	20	255
	3	2.3	10,200	7,700	13.4	11.7							15	17	20	20	
	4	3	13,600	10,200	17.5	15.3							20	22	25	25	
	5	3.8	17,000	12,800	22	19	0.9	1/8	6.5	43	0.7	1/10	24	28	25	30	
	6	4.5	20,500	15,350	26	23							29	33	30	35	
	8	6	27,300	20,500	34	30							38	43	40	45	
	10	7.5	34,100	25,600	43	37							47	54	50	60	
VTH243E	3	2.3	10,200	7,700	14	12.3							20	20	30	30	255
	4	3	13,600	10,200	18.2	15.9							22	24	30	30	
	5	3.8	17,000	12,800	22	20	2.6	1/4	11.5	54	2.3	1/4	26	29	30	30	
	6	4.5	20,500	15,350	27	23							31	35	35	40	
	8	6	27,300	20,500	35	30							40	45	40	50	
	10	7.5	34,100	25,600	43	38							49	55	50	60	

IMPORTANT:

- Heat pump does not operate simultaneously with electric heat.
- Electrical data in the aEove taEe only applies to units manufactured after 8/1/2000 (data code G08). Contact factory for electrical data for units manufactured prior to 8/1/2000.
- Compressors in these models (after 8/1/2000) do not operate simultaneously with heater elements.
- Models manufactured Eefore 8/1/2000 (excluding the VTH24-HP) did feature simultaneous operation and therefore had higher circuit ampacities.

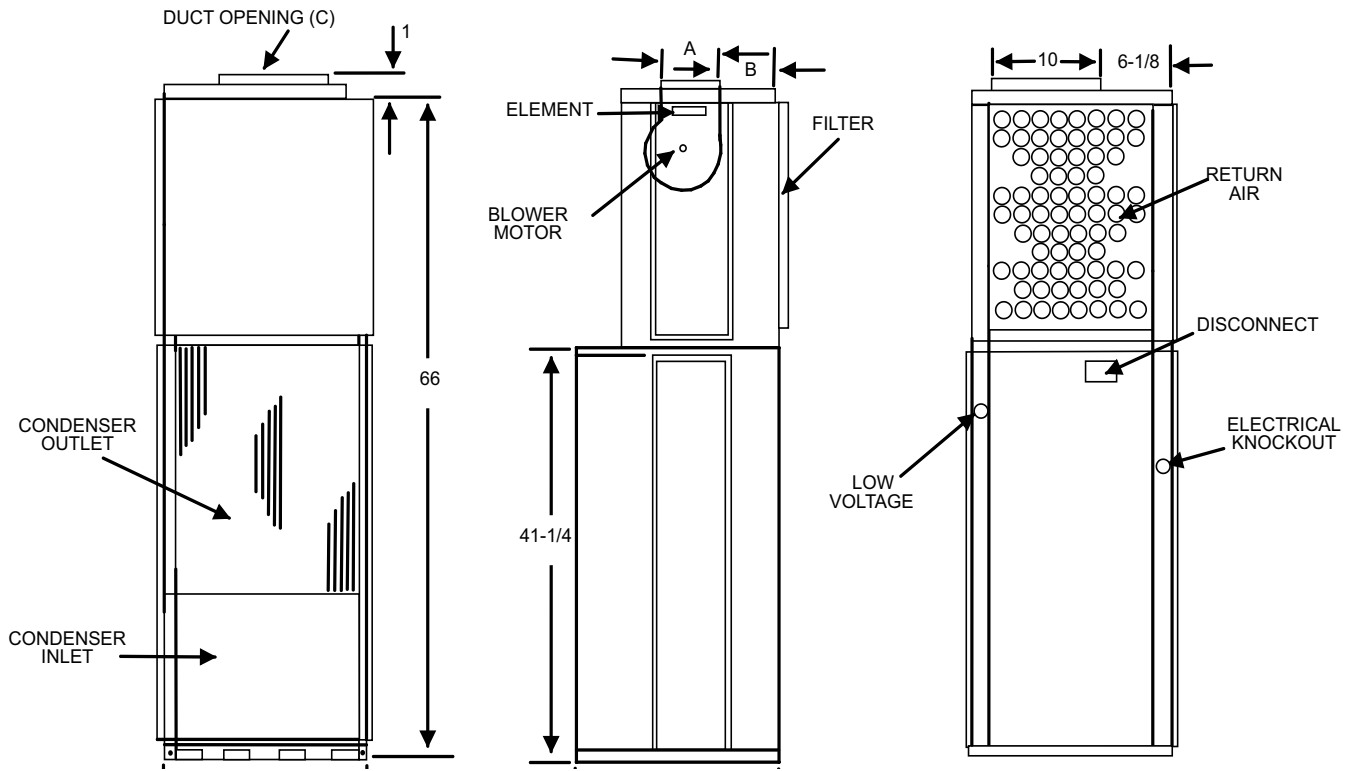
PERFORMANCE DATA

MODEL	COOLING DATA		HEATING DATA ²		
	BTU/H	EER	BTU/H	WATTS	COP
VTH093E	8,900	9.0	8,500	795	3.0
VTH123E	11,400	9.0	11,500	1,001	3.0
VTH183E	17,400	9.0	16,700	1,582	3.0
VTH243E	22,600	9.0	22,400	1,967	3.0

¹ Tested in accordance with ARI Standard 310/380-93 at 95°F DB/75°F WB outdoors and 80°F DB/67°F WB indoors.

² 47°F DB, 43°F WB Outdoor/70°F DB, 60°F WB Indoor

DIMENSIONAL DATA



	A	B
VTC/VTH 09, 12, 18	6½	6½
VTC/VTH 24	10	3

ACCESSORIES

- WALL-MOUNTED LOW-VOLTAGE THERMOSTAT**
Easily controls the unit. Low-voltage wires exit the left side of the cabinet. (See Pg. 8.)
- "FLUSH STYLE" ARCHITECTURAL LOUVER**
Attaches to the outside of the wall sleeve for a flush appearance. Louvers recess into the wall sleeve; stock and custom colors available.
- WALL SLEEVES**
Standard 22" width x 44" Height. Six sleeves (three rear installation, three side installation) available for varying wall widths, from 5" to 20". (See chart below and Figure 7, page 9.)
Shipped separately to allow installation during construction, each sleeve includes a factory installed "weather guard" to cover the sleeve opening during construction phase.
Note: Due to better access to unit, wall sleeves installed in the rear application are recommended over side-installed wall sleeves whenever possible.

Side Wall Sleeves

MODEL	WALL DEPTH	SLEEVE DEPTH
SWS958A	5" - 8" Walls	26"
SWS9812A	8" - 12" Walls	30"
SWS91214A	12" - 15" Walls	33"
	20" Walls	

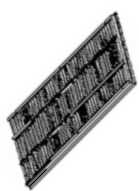
Note: Side-installed wall sleeves require different closet sizes and configurations. (See Page 10.)

Rear Wall Sleeves

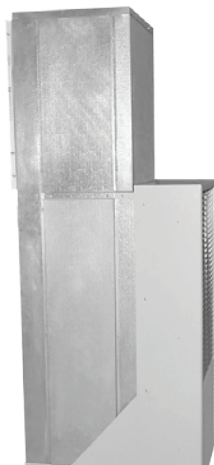
MODEL	WALL DEPTH	SLEEVE DEPTH
VWS95BA	5" - 8" Walls	26"
VWS9812A	8" - 12" Walls	30"
VWS91214A	12" - 15" Walls	33"
	20" Walls	

Architectural Grilles (Available in various colors)

MODEL	WALL DEPTH
AGKV01CB	Anodized Cluminum (Clear)
AGKV01DB	Dark Broze
AGKV01TB	Stonewood
AGKV01WB	White
AGKV015B	Custom Color



UNIT WITH INSTALLED REAR SLEEVE AND FLUSH-STYLE LOUVER



Note: Sleeve, louver, filter, and thermostat required for each general installation.

Separate wall mounting bracket is shipped with "side install" wall sleeves.



Side Install Sleeve

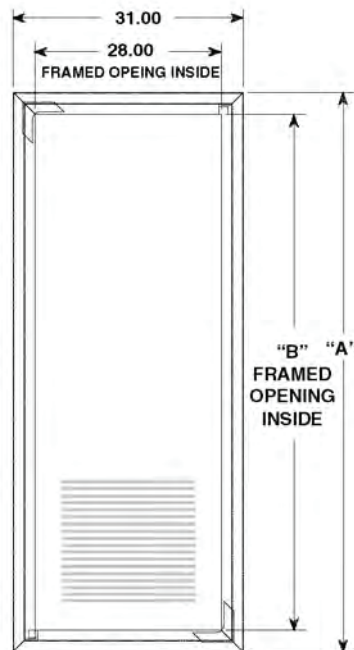
ACCESSORIES (CONT.)

- WALL-MOUNTED LOW-VOLTAGE THERMOSTAT***
 Easily controls the unit. Low-voltage wires exit the left side of the cabinet.
 * Available for straight cool/hydronic chassis and heat pump chassis.
- UNIT MOUNTED FREEZE SENSOR (UMF01A)**
 De-energizes the unit when reduced air flow or ice build-up are detected. Re-energizes the unit when normal operating conditions resume.
- HYDRONIC FLOW CONTROL MODULE (HFC01A)***
 Regulates the amount of hot water heat to the unit. *Applies to hydronic models only.

1246001	Straight Cool/ Hydronic Chassis	Digital cool - off - heat, auto - on
1246003	Heat Pump Chassis	Digital cool - off - heat, auto - on

- OPTIMAL ACCESS/RETURN AIR PANEL**
 Panels are available as louvered or non-louvered and are insulated for sound reduction with tamper-proof screws. Louvered panel includes an 18" x 24" x 1" filter. Non-louvered panels required external return air grilles and unit mount filters.
- FLOAT SWITCH (FSE306A)***
 Opens the condensate pan automatically when water rises in the pan and shuts off the system by breaking low or line voltage current to the compressor. Switch is normally closed. By clipping the float switch to the side of the auxiliary drain pan, ceiling water damage is prevented. In some areas, this switch can replace an auxiliary drain pan. Local building codes should be checked for application.
Note: The float switch must be installed before unit is set in the sleeve.
 *Applies to hydronic models only.

Access/Return Air Panel



Access/Return Air Panel^{3 4}

PART #	DESCRIPTION	DIMENSIONS (H x W)		SHIP WEIGHT
		FRAME	OPENING	
931-11	Louvered ¹	87 x 31	84 x 28	55
931-12	Non-Louvered ²	87 x 31	84 x 28	55
931-13	Louvered ¹	82 x 31	79 x 28	55
931-14	Non-Louvered ²	82 x 31	79 x 28	55

Note: A solid door or panel with a side wall return air grille will result in lower sound levels.

PART #	A	B
N/LWPO187	87	84

ACCESSORIES (CONT.)

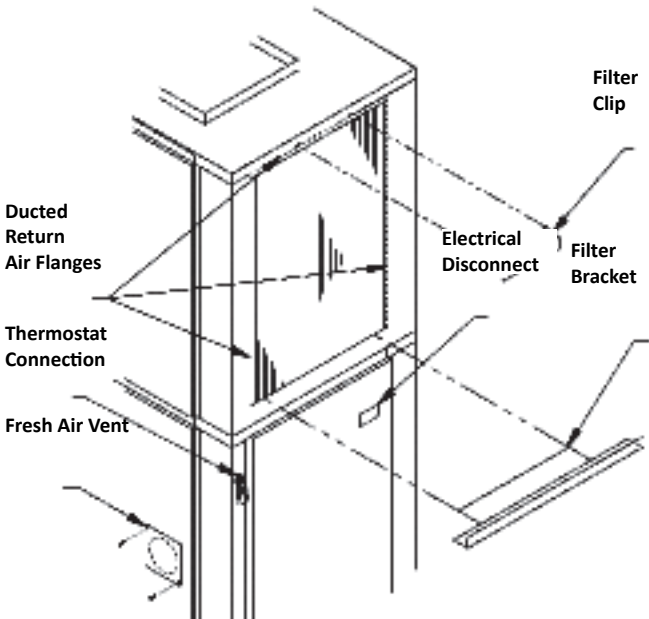


Figure 5—Filter Bracket Detail

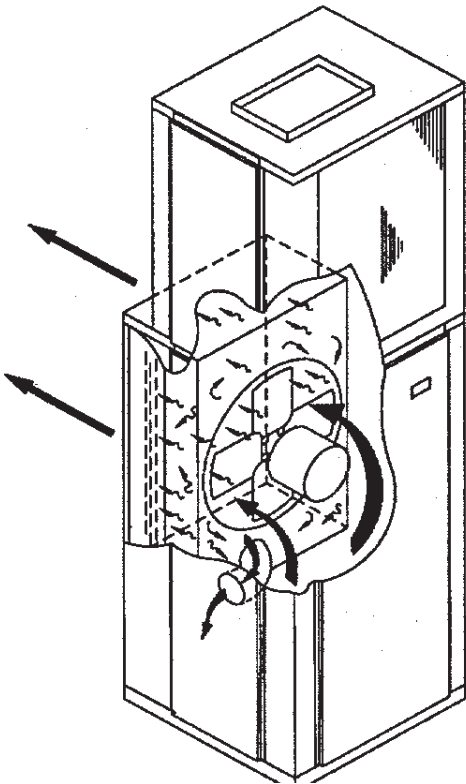


Figure 6

OUTDOOR AIR VENTILATION

One end of a 4" aluminum vent pipe is connected to the condenser venturi and the other end is connected to the side of the VTC/VTH cabinet. A mesh screen is installed inside the vent pipe, and a metal plate on the side of the cabinet covers the opening of the vent pipe. Up to 50 CFM of outside air is introduced into the equipment closet by removing the metal cover plate. The outside air then mixes with the return air and is pulled through the evaporator coil and into the supply duct. The cover plate can be re-installed to partially close the outside air opening if less than 50 CFM is desired. An external source of negative pressure (i.e., a bathroom fan) could be used to introduce more than 50 CFM of outside air. Consult with factory for further details.

Note: It is suggested that a minimum 24" door be used for access. Closet interior may be smaller than listed here as long as the door opening allows for removing the unit. Door opening must line up with unit to allow removal.

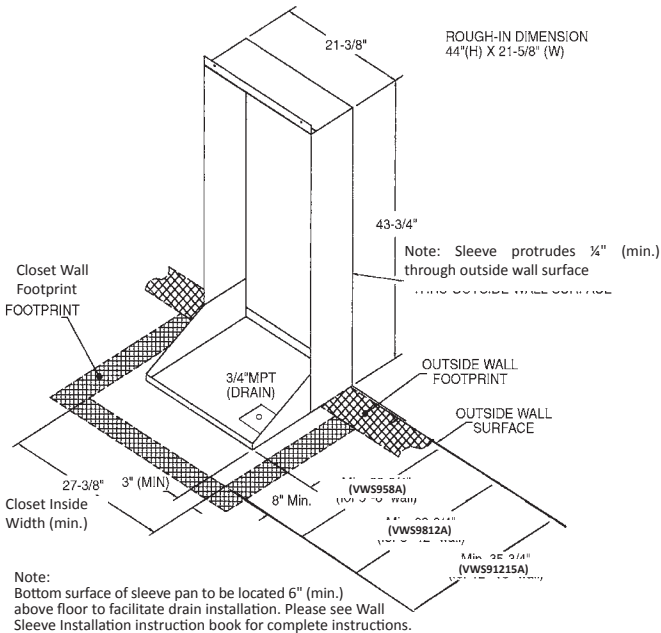
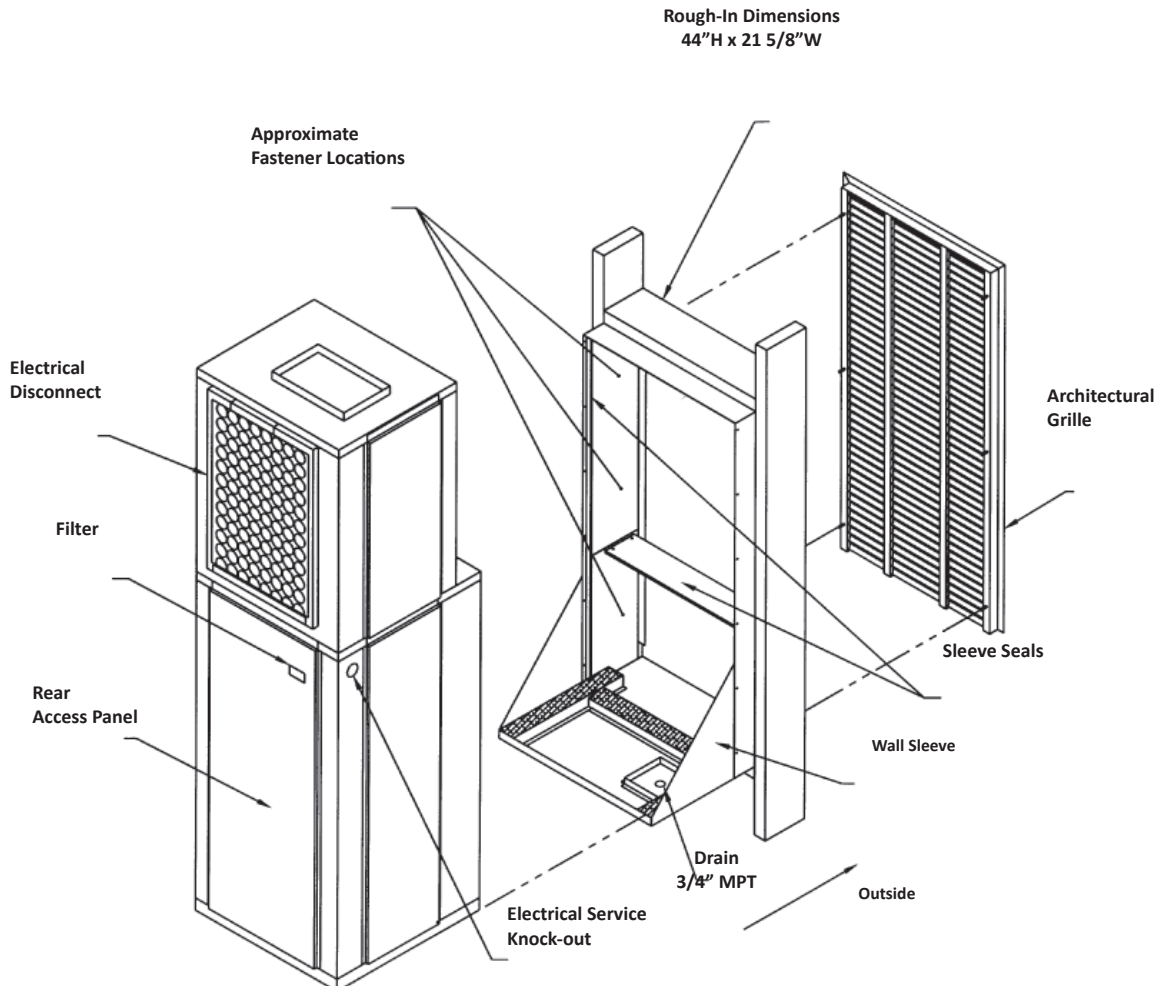


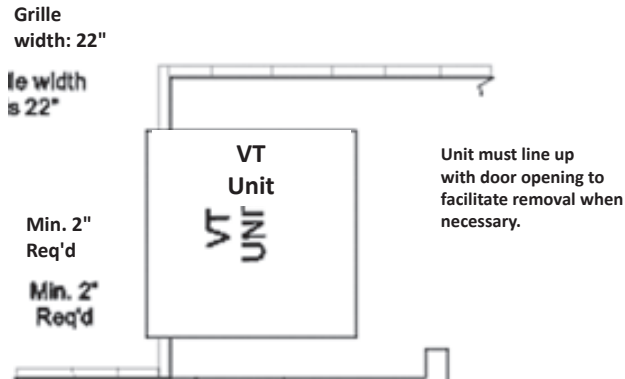
Figure 7

GENERAL ASSEMBLY



INSTALLATION

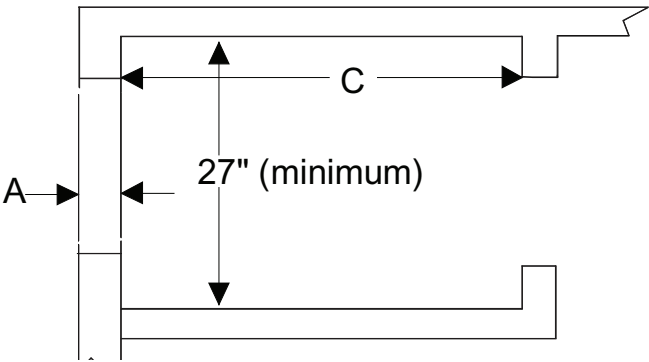
REAR INSTALLATION



Notes:

1. Sleeve rough-in opening is 44" (H) x 21-5/8" (W)
2. Bottom of opening should be approximately 6" above floor level.
3. Minimum 3" clearance is required on all sides of the unit.

REAR INSTALLATION—CLOSET DIMENSIONS



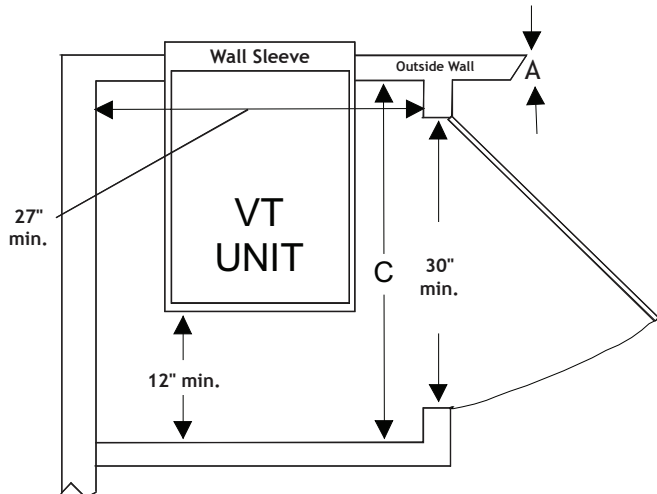
Instructions:

To find the minimum closet depth (dimension "C"), use the following method:

Determine dimension "A" which is the total finished wall thickness.

- * For 5"-8" outside wall thickness, subtract "A" from 29" ($C = 29 - "A"$)
- * For 8"-12" outside wall thickness, subtract "A" from 33" ($C = 33 - "A"$)
- * For 12"-15" outside wall thickness, subtract "A" from 36" ($C = 36 - "A"$)

SIDE INSTALLATION—CLOSET DIMENSIONS



Instructions:

To find the minimum closet depth (dimension "C"), use the following method:

Determine dimension "A", which is the total finished wall thickness.

- * For 5"-8" outside wall thickness, subtract "A" from 39" ($C = 39 - "A"$)
- * For 8"-12" outside wall thickness, subtract "A" from 43" ($C = 43 - "A"$)
- * For 12"-15" outside wall thickness, subtract "A" from 46" ($C = 46 - "A"$)

GUIDE SPECIFICATIONS

Ratings – Each unit must meet the following specifications:

ARI rating of _____ BTU/h cooling (and _____ BTU/h reverse cycle heating with a COP of _____ at 47 °F O.D.)

Electric resistance heat of _____ BTU/h. Total Amp draw must be of _____ and _____ Watts at _____ volts.

The EER must be a minimum of _____ EER.

Unit Chassis — Each unit must be slide-out design, ready for installation into closet space. Unit must fit into closet space not to exceed 24" x 24" with overhead duct connections designed to .25 ESP. Unit must be tested for conformance to ASTM E water infiltration specification ASTM E 331-86, which ensures no water infiltration when tested at 8" rain per hour at 63 mph wind for 15 min.

Filter — Filter provided with the unit. Installer must provide for easy accessibility.

Heat Pumps — Each unit must include a changeover thermostat that senses an outside coil switch-over temperature of 25°F, lock-open refrigerant-reversing valve during heat pump operation, temperature-activated defrost drain and automatic emergency heat operation to over-ride the heat pump's change-over thermostat and bring on electric resistance heaters in the event of a sealed-system failure.

Compressor — The compressor must be hermetically sealed, internally isolated, rotary-type and permanently mounted on rubber isolators. No removal or adjustment of compressor hold-down bolts is to be required during installation.

Unit Controls — The unit must be controlled by a thermostat. Other unit controls must include a concealed ventilation control to allow the introduction of filtered air into the room, a concealed fan mode switch to allow the owner to preset for either continuous fan or thermostatically cycled fan operation. Additionally, the following controls are to be included as standard on all units:

- Compressor restart delay
- Random restart circuit
- Front desk control
- Evaporator coil freeze protection
- Fan delay
- Low ambient lock-out

Evaporator/Condenser Fans — Direct drive with a permanent split capacitor, two-speed motor. Must have a condenser fan and separate indoor evaporator motor. Condenser fan must be propeller type and evaporator fan must be blower type.

Coils — Unit's coils must have copper tubing expanded into rippled-edge louvered aluminum fins.

Discharge and Return Air — A unit must be able to discharge air through an overhead duct system with an external static pressure capability of 0.35" for 9,000 and 12,000 unit sizes and 0.40" for 18,000 and 24,000 unit sizes. The return air must be capable of a free return at the unit or a ducted return.

Warranty — Limited One-Year Warranty; Second- through Fifth-Year Limited Replacement Compressor Warranty. Full warranty details are available at www.amana-hac.com.

Wall Sleeve — The wall sleeve must be of industry-accepted dimensions: from 21" [d] to 28" [d] (dependent upon wall width, from 5" to 15") x 22" [w] x 44" [h] and constructed of insulated galvanized steel for corrosion resistance. Sleeve must be shipped with weather-resistant rear closure panel installed.

Condensate Drain — The unit must have a condensate draining system. A vertical pipe connection in the base pan is connected to the evaporator drain pan via a drain line. Condensate passes from the unit to a catch tray, located in the wall sleeve, and exits the sleeve through a ¼" male NPT fitting. (This allows piping to be done during construction stage).

The unit must also have a secondary condensate draining system for overflow. If the primary condensate draining system becomes clogged, water will be directed from the catch tray, through the sleeve, to the outside of the building. Any external water source (rain, sleet, etc.) entering the sleeve will also be diverted to the building's exterior.

Outdoor Grilles — Must be architecturally extruded and made of anodized aluminum (AGKV***A). All other grilles must be submitted to our company for feasibility, airflow characteristics and compliance with U.L. regulations, where necessary.

Hydronic Heat Units — Required for heating functions instead of electric resistance heaters. Unit must retain complete service access with the kit installed. Proper water or steam valves must be used; however, they are not included with the Hydronic Heat Unit.

Thermostats — A manual, auto-changeover or programmable thermostat must be installed to provide full remote operation of the chassis.