



Management
System
ISO 9001:2008

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Bypass Variable Air Volume (Single Duct)



Our Product Ranges

Dampers

- 1 Fire Dampers
- 2 Fire / Smoke Dampers
- 3 Volume Control Dampers
- 4 Motorized Control Dampers
- 5 Pressure Relief Dampers /Non Return Dampers

Variable Air Volumes

- 6 Pressure Independent VAV
- 7 Constant Air Volume VAV
- 8 By Pass VAV

Louvers

- 9 Sand Trap Louvers
- 10 Acoustic Louvers
- 11 Stationary Louvers / Architectural Louvers
- 12 Storm Louvers
- 13 Weather Louvers

Sound Attenuators

- 14 Rectangular Sound Attenuators
- 15 Circular Sound Attenuators
- 16 Crosstalk Attenuators

Electric Duct Heaters

- 17 Flange & Slip 'n' Type
- 18 Modulating & On/Off Type

Air Outlets

- 19 Registers & Grilles
- 20 Diffusers (Linear Diffusers, Sq. & Rect. Ceiling Diffusers, Round Diffusers, Jetflow Diffusers)
- 21 Swirl Diffusers & Disc Valves
- 22 Drum Louvers

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Bypass Variable Air Volume (Single Duct)



Overview

Airwellcare Bypass VAV is a comfort system developed for light, medium and heavy duty Commercial, Residential & Industrial applications. Bypass VAV system responds to changing cooling or heating requirements by varying the quantity or volume of air delivered to each zone. An HVAC unit delivers a constant volume of air to the system. As the volume of air required by the zone changes, excess supply air is directed to the return duct via a bypass duct and damper.

Airwellcare Bypass VAV is a single-path system that controls zone temperature by modulating airflow while maintaining constant supply of air to VAV terminal units, located at each zone, adjust the quantity of air reaching each zone depending on its load requirements. Reheat coils may be included to provide required heating for perimeter zones. A Bypass VAV box provides constant or variable airflow depending on the temperature demands of the space. As the temperature raises the VAV damper opens to send a designed amount of airflow to the space/ or room.

The Bypass VAV system combines the comfort benefits of VAV with the cost effectiveness and simplicity.



The VAV System that works..

The Bypass terminal unit handles a constant supply of primary air through its inlet. The unit bypasses primary air to the ceiling plenum to meet the needs of conditioned space.

A temperature sensor in each zone communicates information to an electronic controller on the VAV terminal unit. The controller then modulates the zone damper open or closed, supplying heating or cooling air to the zone

VAV Applications :

- Residential & Commercial Buildings
- Airports
- Office space
- Hospitals
- Hotels
- Retail stores
- Shopping Malls
- Educational facilities
- Indoor Games
- Stadiums
- Theaters



Key features & benefits

Cost-Effective & Improved Indoor Air Quality

Airwellcare VAV systems can change the supply air volume according to the cooling and heating load variation to enable the cooling, heating capacity and fan power to meet actual load requirement, resulting the significant reduction of energy consumption.

These VAV systems can utilize the outdoor fresh air as much as possible during transitional seasons, which not only saves energy consumption, but also improves indoor air quality. It is estimated that over 30% of the annual energy consumption can be saved and 10-30% of total equipment capacity can be reduced by using VAV system.

Simple Construction & Installation

Airwellcare VAV boxes are constructed with high quality Galvanized Steel casing/ Aluminium casing which makes handling & installation simple and easy.

Compatible to any Building Management System (BMS)

Airwellcare VAV systems can be integrated to any BMS (Building Management System) through Direct Digital Control (DDC) control.

System optimization and monitoring of the whole system can be achieved by computerized centralized system.

Quality Assurance & Performance

Airwellcare VAV Systems & Controllers ensures the product quality, system compatibility and the perfect system integration, to meet the current industry regulations and standards.

Features

1. Compact Design.
2. Easy to install.
3. Single or Double Wall Construction (Optional).
4. Factory assembled controls & calibration.
5. Maintenance Free.
6. Individual room comfort.
7. Energy savings and reduced wear.
8. Design ensures low pressure drops on air side.
9. Robust against corrosion and pollution.
10. Low aerodynamic resistance.
11. Extensive range starting from AHS 4 to AHS 18.
12. Modulating control of the compressor also reduces wear and delivers further energy savings.
13. Can be used to add zone control to various areas of the existing building.
14. Internal Insulation helps to achieve low NC levels for various applications.
15. Leakage at regulator shut-off will not exceed 3% of maximum air volume at 750Pa inlet static pressure.
16. Modulating actuator which accepts 1–10v or 2–10v signals from suitable Thermostats.
17. Each and every unit is tested at final assembly stage for its operation before packing.
18. VAV fan control, especially with modern electronic variable-speed drives, reduces the energy consumed by fans, which can be a substantial part of the total cooling energy requirements of a building.
19. Provides excellent temperature control and central air distribution with unlimited zoning simple solution to distribute and control airflow from constant speed FCUs or AHUs.
20. Options are available for construction of inlets and outlets in rectangular shape, with flanges on both ends or with slip and drive connections.

Standard Construction Details

1. **Casing** are made of high quality Galvanized Sheet Steel of 18 Gauge.
2. **Damper Blade** made from 18 Gauge high quality Galvanized steel sheet with flexible gasket to ensure low leakage as per DW142 Class-C.
3. **Internal Insulation** VAV Boxes are Internally Insulated with ½ Inch Or 1 Inch Acoustic Liner (in compliance with project requirement). The Fiberglass insulation meets the requirements of NFPA 90A & 90B, NFPA 255, UL181, ASTMES4 and ASTM C 1071 & Class 'O' fire rating conforming to UK building regulations.
4. **Metal** encapsulated edge prevents cut fibers of the insulating plate falling off, and avoids erosion in the air stream, in accordance with requirements of UL181 & NFPA 90A.
5. **VAV Damper Shafts** are made of 12mm Dia Round Solid Composite Steel shafts, which prevents condensation and breakage.
6. **Damper Gaskets** Blade edges are sealed with Rubber Gaskets, preventing air leakage and for an air tight operation with low leakage characteristics.
7. **VAV Sound Attenuator (optional only)** VAVs are provided with Sound Attenuator as an optional (upon request), where excess noise to be decreased or controlled maximum.
8. **Electric Duct Heater** (Optional only) shall be included, where indicated on the plans. The heater Control Box shall be constructed of not less than 20 gauge galvanized steel. Heater shall have a hinged access panel for entry to the controls.
9. **VAV Controls** are factory assembled & calibrated based on Customers project requirements, which can be comprised of:
 - ◆ DDC Controls (BACnet & LON Works)
 - ◆ Standalone System
 - ◆ Double wall construction

Standard Construction Details

VAV Damper Shafts are made of 12mm Round Solid Composite Steel which prevents condensation & breakage

Brass / SS Ball Bearing
Self-lubricating bearing to reduce friction and air leakage



Double Wall
0.7mm Thick
(3mm hole x 5mm pitch)
Galvanized perforation prevents cut fibers of the insulating plate falling off, and avoids erosion in the air stream.

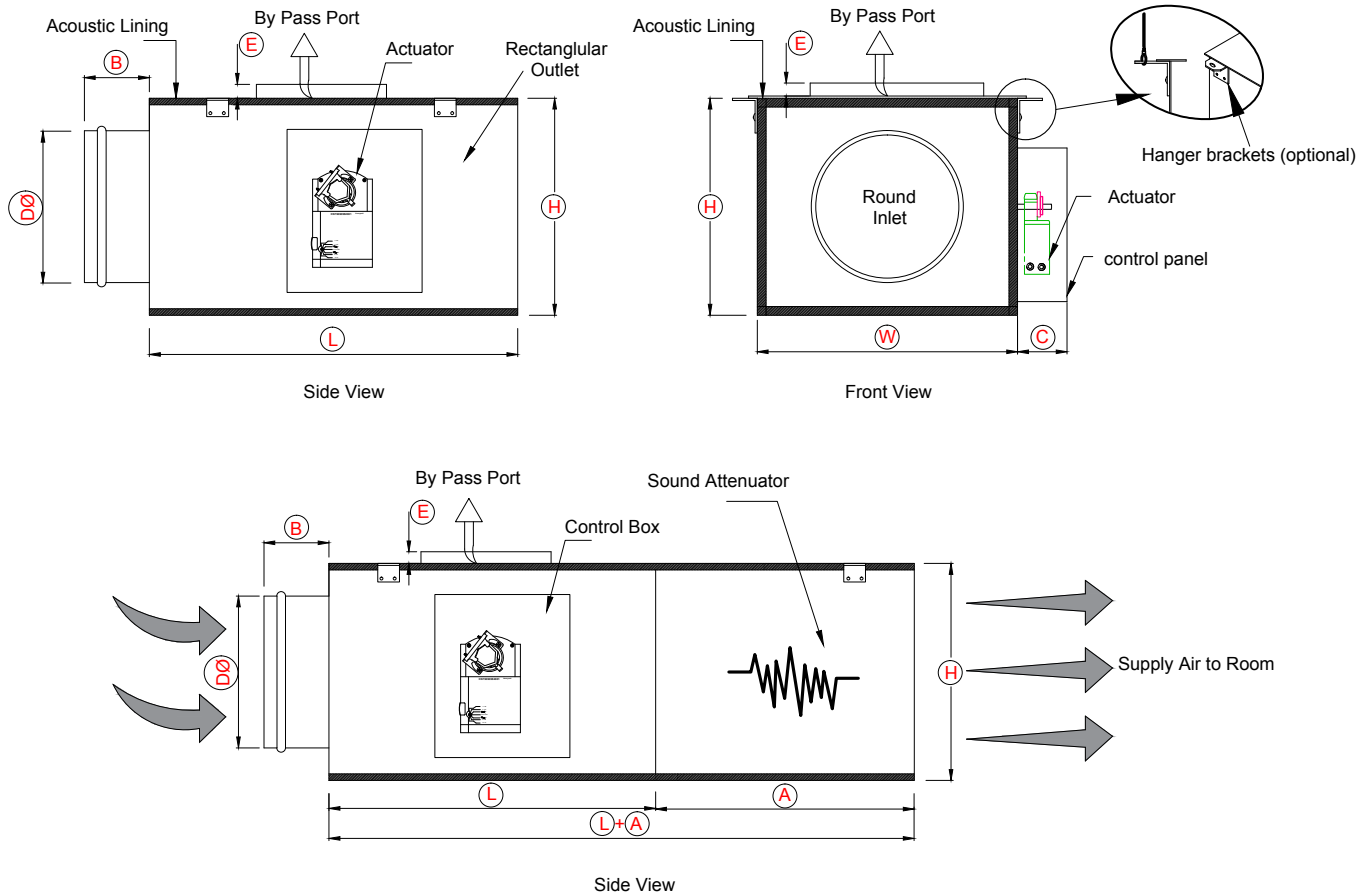
Internal Insulation
Internally insulated with 12.5 (1/2 Inch) 25mm (1 Inch) Acoustic liner.

Metal encapsulated edge prevents cut fibers of the insulating plate falling off, and avoids erosion in the air stream.

Control Box (VAV)
Electrical devices installed with single point power connection

Slip and drive discharge collar for quick field installation

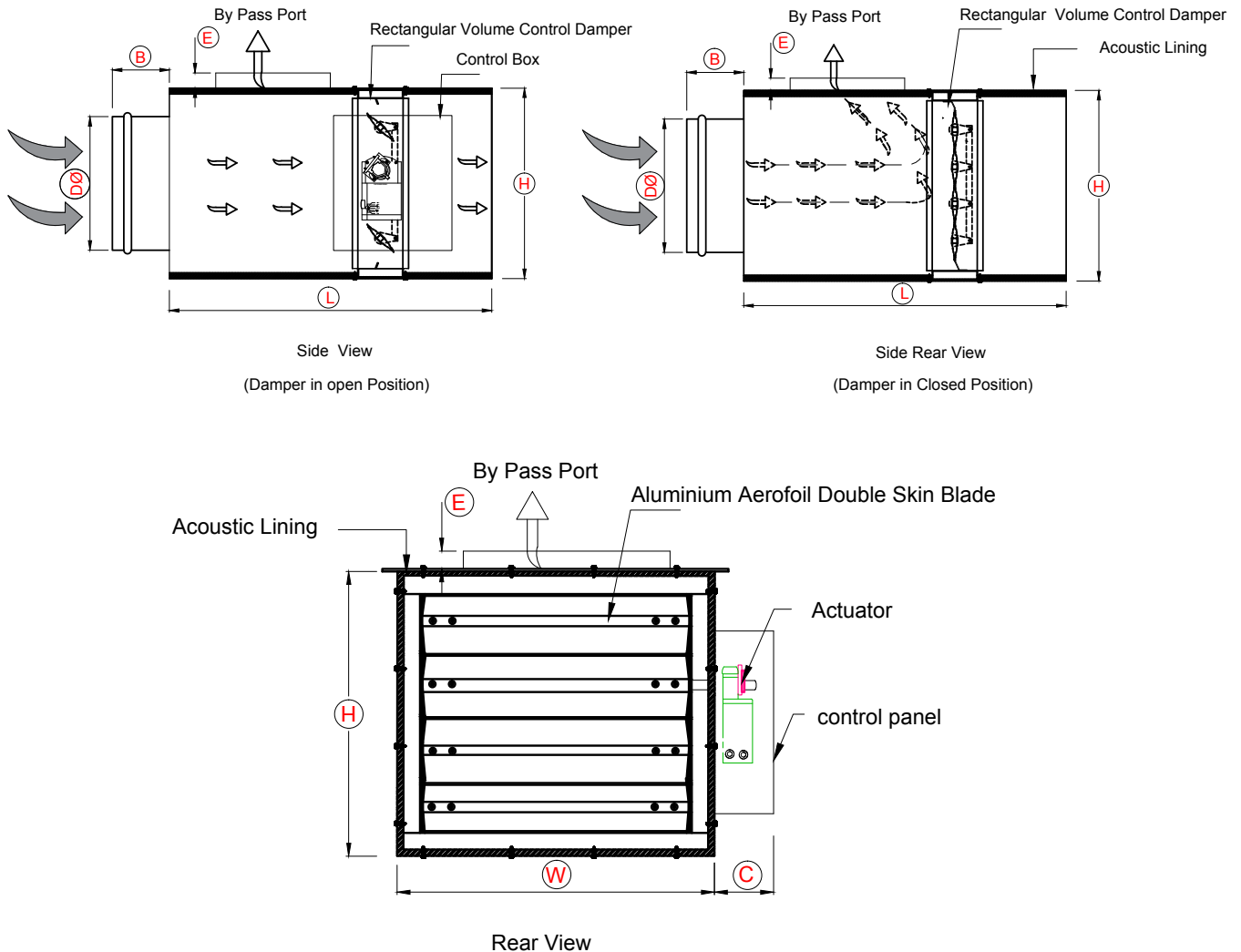
Dimensional Data



Airflow Ranges (CFM)

Model & Unit Size	Airflow		Box Dimensions (mm)								
	Min	Max	W	H	L	A	L+A	B	C	D	E (W x H x L)
AHS 4	45	250	275	250	400	500	900	100	80	175	225 x 25 x 125
AHS 5	70	350	300	250	400	500	900	100	80	175	250 x 25 x 125
AHS 6	75	475	325	275	400	500	900	100	80	175	275 x 25 x 125
AHS 8	140	950	375	300	500	500	1000	100	80	200	325 x 25 x 150
AHS 10	230	1540	425	350	500	600	1100	100	80	300	375 x 25 x 150
AHS 12	340	2200	450	400	600	600	1200	100	80	350	400 x 25 x 150
AHS 14	480	3100	550	425	600	600	1200	100	80	350	500 x 25 x 175
*AHS 16	625	4100	650	450	700	600	1300	100	80	400	600 x 25 x 200
*AHS 18	1180	5200	750	450	750	600	1350	100	80	400	700 x 25 x 200

Rectangular Damper Construction in Bypass VAV



- Rectangular Bypass dampers are available in various sizes depends on Box dimensions.
- Air leakage is minimized with an opposed blade design with stainless steel side seals.
- Damper casing is constructed of heavy gauge galvanized sheet metal.
- Blades are 4-inch nominal width, double Skin Aero-foil type. Galvanized Single Skin and Double Skin Blades are optional.
- Factory-installed, direct-coupled, fully modulating 24 VAC/230 VAC electric actuators with compatible thermostats.

Discharge Attenuation Values	OCTAVE BAND					
	2	3	4	5	6	7
Small Box (< 300 CFM)	24	28	39	53	59	40
Medium Box (300 - 750 CFM)	27	29	40	51	53	39
Large Box (> 700 CFM)	29	30	41	51	52	39
Radiated Attenuation Values	18	19	20	26	31	36

- Options are available for construction of inlets and outlets in rectangular shape, with flanges on both ends or with slip and drive connections.

Electric Heater Details



Electric heaters shall be factory mounted to the terminal with the heating elements located upstream of the air-flow control damper to ensure uniform velocity profile over the elements.

A power disconnect shall be furnished to render the heater non-operational. Heater shall be furnished with all controls necessary for safe operation and full compliance with UL 1996 and National Electric Code requirements.

Heater shall have a single point electrical connection. It shall include a primary disc type automatic reset high temperature limit, secondary high limit(s), airflow switch, Ni-Chrome elements, and fusing per UL and NEC. Heater shall have complete wiring diagram with label indicating power requirement and kw output.

Electrical Heater Components

- Stainless Steel Finned Tubular Elements
- Hinged Weather proof Control Panel
- Airflow Switch
- Control Transformer (optional)
- Magnetic Contactors
- Fuse
- SCR Power Controllers / On-Off Controller
- Miniature Circuit Breaker (MCB)
- Bimetal Linear Manual Resettable Thermal Cut out
- Automatic Thermal cut out.

Installation & Balancing

Step -1

1. Move unit to installation area. Remove all Packing materials. Handle carefully while shifting, since controllers are sensitive.
2. Unit with factory-installed brackets shown in Fig. Suspend units from building structure with straps, rods, or hanger wires. Secure the unit and level it in each direction.

Step- 2

- Install supply ductwork on unit inlet collar. Check that air-supply duct connections are airtight and follow all accepted medium pressure duct installation procedures. (Refer to Table 2 for Pressure Data).

CONTROL SETUP & BALANCING

- Airwellcare Bypass VA V terminal is designed to supply a varying quantity of cold primary air to a space in response to a thermostat demand, with excess air diverted to a secondary discharge outlet. This type of VAV terminal is not equipped with pressure compensating controls, but rather, the thermostat or pressure dependent controller is directly connected to the actuator.
- To balance the unit it is necessary to establish a pressure balance between the straight through and full bypass modes of operation.
- To ensure proper equipment performance, it is recommended that a length of rigid straight duct equal to 3 times of duct diameter to be provided to the inlet. An inlet balancing damper should either be included with the unit (optional) or installed upstream of the unit in supply ductwork.

- Install the discharge duct. Where a multiple outlet connector is used on the box, connect appropriately sized ductwork to the outlets. Use adapter caps to seal unused outlets.
- Fully open all balancing dampers. To ensure use of common diameter air duct, coordinate diameters of box inlet and multiple outlet collars. Insulate duct as required. A straight length of inlet duct is not required before the unit inlet. Ninety-degree elbows or tight radius flexible duct immediately upstream of inlet collar should be avoided.

Balancing Steps:

1. With the actuator fully open (no bypass) and the air system operating normally, establish the desired maximum cooling or heating airflow to be delivered by adjusting either the optional inlet balancing damper or a separate damper installed upstream of the unit.

(Note - failure to limit the airflow at the inlet of the unit may result in damper failure under some conditions). Discharge airflow may be determined in whatever means is appropriate for balancing the diffusers in the system in accord with established balancing procedures.

2. Determine the supply duct inlet pressure.
3. Set the unit actuator to full bypass mode.
4. Adjust the bypass balancing damper so the inlet duct pressure is the same as when in the fully open position. This assures that the position of the bypass damper will have minimum effect on the operation of the main air handler.

Engineering Guidelines

Radiated Sound Power Data (Bypass Open)

Unit Size	CFM	0.5" ΔPs						1.0" ΔPs						1.5" ΔPs						3.0" ΔPs					
		OCTAVE BAND																							
		125	250	500	1K	2K	4K	125	250	500	1K	2K	4K	125	250	500	1K	2K	4K	125	250	500	1K	2K	4K
4	100	45	42	35	28	25	25	48	42	38	31	27	23	48	45	41	35	28	25	47	49	45	37	32	30
	150	44	45	40	32	28	27	51	46	43	35	29	25	52	52	44	36	32	28	52	54	48	43	36	33
	200	50	50	44	38	32	28	56	51	47	40	34	31	55	55	49	42	35	33	56	60	52	46	40	37
	250	53	53	47	39	36	32	57	54	51	43	37	34	58	56	52	44	29	36	61	63	58	50	44	40
5	100	41	36	33	25	23	20	45	40	37	28	25	22	46	42	40	32	27	24	47	46	44	36	31	30
	200	45	43	40	33	28	28	48	48	44	35	30	28	50	48	45	37	33	29	51	52	49	43	36	34
	250	48	45	43	35	31	28	51	51	46	39	32	30	53	53	48	40	33	29	53	53	46	45	40	35
	300	49	48	45	36	34	30	53	53	48	41	35	32	55	55	50	42	36	31	56	56	56	48	42	39
6	350	52	51	47	39	36	32	56	55	51	43	38	35	57	57	54	45	40	36	58	58	58	50	45	41
	200	41	37	38	36	33	23	47	44	45	43	40	29	48	46	49	47	43	32	51	52	54	51	46	37
	250	45	40	39	35	32	24	48	46	45	44	41	30	49	49	51	48	45	34	53	54	56	55	51	39
	300	47	42	40	35	31	25	50	48	46	44	41	30	51	51	50	49	45	35	55	56	58	57	54	42
8	350	51	45	42	38	31	25	53	50	47	43	39	29	52	52	50	49	45	35	57	58	60	58	55	43
	400	52	48	43	37	32	27	55	52	48	44	40	31	56	53	48	42	37	32	59	59	61	59	56	44
	450	53	48	45	40	32	28	56	53	50	45	39	32	58	55	53	49	46	36	60	60	62	59	56	45
	550	59	52	49	43	36	30	63	58	53	46	41	34	58	56	55	50	46	38	63	63	62	57	54	45
10	300	44	36	38	32	28	25	49	46	42	38	33	29	50	48	45	40	37	30	53	53	52	47	42	34
	400	48	41	40	35	30	25	51	47	44	39	35	30	54	48	47	43	38	32	58	56	54	49	44	37
	500	50	42	41	36	32	26	53	48	46	41	37	31	53	50	49	44	40	33	57	57	55	51	45	40
	600	52	43	43	38	33	26	56	51	47	42	39	31	56	52	49	46	41	35	60	59	57	52	47	41
12	700	54	45	44	39	34	27	58	51	48	44	39	32	58	55	52	49	46	37	62	60	58	53	48	42
	800	56	46	45	40	34	28	59	52	50	45	40	33	61	56	52	49	43	37	64	62	59	54	50	43
	1000	60	51	47	42	36	30	61	56	52	47	42	35	63	58	55	50	45	39	67	63	62	56	50	44
	600	47	39	37	32	28	27	53	47	43	36	31	29	54	50	46	40	34	31	58	58	57	49	42	36
14	800	50	43	39	34	29	28	54	49	45	37	33	30	56	52	48	42	37	32	60	59	56	50	43	38
	1000	52	44	42	36	30	29	55	51	47	40	35	30	58	53	50	44	38	33	61	61	56	50	44	40
	1100	54	44	43	38	32	28	55	52	48	41	36	31	58	55	49	46	45	40	63	61	58	51	45	40
	1200	54	45	44	37	30	27	56	54	49	42	37	32	58	55	53	45	40	35	65	61	59	52	46	41
16	1400	56	46	45	37	31	27	58	54	50	43	38	33	60	56	54	47	42	36	65	62	60	53	47	43
	1600	60	48	47	38	32	30	63	55	52	45	40	35	64	58	55	48	43	38	67	63	62	54	48	42
	800	45	50	39	40	33	29	51	48	47	40	37	33	52	52	50	43	40	36	54	60	58	52	46	44
	1100	48	40	40	33	30	28	54	51	48	42	39	33	55	53	51	45	40	36	57	61	59	53	47	45
18	1400	50	45	41	34	32	29	55	52	50	44	39	35	57	53	52	46	42	37	60	62	60	54	49	46
	1600	52	47	43	38	32	30	56	52	51	44	40	35	58	55	50	46	43	39	61	63	60	54	48	45
	1700	53	45	44	38	33	31	56	52	51	45	41	35	58	55	53	47	42	37	62	63	61	55	49	46
	2000	54	48	46	39	33	30	58	53	52	45	41	35	60	56	53	48	42	37	65	65	62	56	50	46
20	2300	55	50	48	41	35	31	59	55	53	47	40	34	62	58	56	49	43	39	66	66	64	57	51	47
	1100	46	42	36	36	34	29	52	49	42	39	40	36	55	52	45	42	41	38	60	61	54	50	47	45
	1500	48	43	39	37	34	28	54	51	45	40	41	36	56	54	48	43	42	39	62	62	55	52	48	47
	1900	50	45	42	39	33	30	56	52	47	42	43	37	58	55	49	46	45	40	63	62	56	53	51	48
22	2100	52	47	43	39	35	31	56	53	48	42	42	37	60	62	50	54	49	46	64	63	57	54	52	49
	2300	53	48	44	40	35	31	57	53	48	42	42	36	60	58	52	46	46	40	66	64	58	54	53	51
	2700	54	50	46	40	36	32	59	55	50	46	43	36	61	58	54	48	45	40	66	65	60	55	54	49
	3100	55	52	42	42	37	32	61	57	52	46	43	38	63	60	55	49	45	41	67	66	62	57	54	48
24	1600	47	44	34	35	30	29	52	49	43	40	36	33	55	52	45	42	38	35	59	62	56	50	46	41
	2100	48	46	36	36	33	29	55	52	46	41	39	34	57	55	48	44	40	37	61	64	56	52	47	43
	2600	52	48	38	40	36	30	57	52	47	43	41	36	59	56	50	46	43	39	63	63	58	53	49	46
	2800	53	47	38	40	35	30	58	53	48	44	41	37	60	60	54	50	47	44	64	65	58	54	50	49
26	3100	54	48	40	41	36	32	59	55	49	45	42	38	61	59	52	48	45	40	64	65	59	55	50	48
	3600	55	50	42	42	38	34	60	57	51	47	43	39	63	59	54	50	46	43	67	66	62	56	53	48
	4100	56	53	44	44	40	35	61	58	53	48	45	40	65	61	56	51	48	44	70	68	63	58	53	51
	2500	57	55	52	45	39	31	63	58	58	50	44	37	64	61	61	53	48	40	68	65	65	61	55	48
28	3000	57	56	53	45	39	32	63	59	59	50	44	37	64	61	62	54	48	41	68	66	66	62	56	48
	3500	58	57	54	46	40	33	64	60	60	51	45	38	65	62	63	55	49	42	69	66	67	62	57	49
	4500	58	59	57	48	43	35	64	62	63	53	48	41	66	64	66	57	51	44	70	68	70	65	59	52
	5400	60	60	60	50	46	38	65	64	66	55	50	43	66	66	69	59	54	47	71	70	73	67	62	55
30	5500	60	61	61	51	46	38	65	64	66	56	51	44	66	66	69	60	54	47	71	70	74	68	62	55
	6500	64	63	64	54	49	42	65	66	70	59	54	47	67	68	73	63	58	51	73	73	77	71	65	58

- ◆ Sound levels are based on dB re: 1 x 10-12 Watts
- ◆ The above data is obtained outside the certification programme.
- ◆ Radiated Sound Power is the noise transmitted through the casing walls.

Engineering Guidelines

Discharge Sound Power Data (Bypass Closed)

Unit Size	CFM	0.5" ΔPs						1.0" ΔPs						1.5" ΔPs						3.0" ΔPs					
		OCTAVE BAND																							
		125	250	500	1K	2K	4K	125	250	500	1K	2K	4K	125	250	500	1K	2K	4K	125	250	500	1K	2K	4K
4	100	57	55	46	42	36	35	61	59	50	46	43	43	61	60	52	48	45	44	62	60	55	53	51	52
	150	61	60	50	46	41	36	66	64	54	50	46	45	69	65	55	51	47	45	68	67	60	57	56	55
	200	65	63	53	49	44	42	71	67	57	53	48	48	72	69	59	550	50	50	73	72	64	60	57	55
	250	68	65	55	53	46	45	72	70	59	55	51	49	73	71	61	58	53	52	76	76	65	62	59	58
5	100	55	53	44	40	35	33	58	57	48	43	42	43	59	58	50	46	44	45	59	59	54	50	50	51
	200	62	60	51	46	41	38	66	64	54	50	45	44	67	66	57	52	47	66	66	61	57	55	55	56
	250	65	62	53	48	43	41	69	67	56	52	47	45	70	68	59	55	51	50	69	69	63	59	56	56
	300	68	64	54	50	45	43	71	68	54	49	47	70	70	60	56	51	50	70	70	70	63	60	58	58
6	350	68	65	55	51	47	45	73	70	59	55	50	49	74	71	62	57	53	51	73	72	66	62	60	57
	200	54	51	48	44	38	36	59	56	52	48	44	42	60	59	55	51	47	45	65	65	2	57	54	53
	250	59	53	49	46	40	37	63	58	53	49	45	43	64	61	56	52	48	47	66	67	63	59	56	55
	300	61	55	51	47	41	39	64	60	54	51	46	44	65	63	57	54	50	48	68	68	64	60	57	55
6	350	62	57	52	48	42	40	65	63	55	52	47	46	66	64	58	55	51	50	70	70	65	62	58	57
	400	63	58	53	50	43	41	66	64	57	53	48	48	69	65	61	57	56	53	71	71	66	63	59	58
	450	64	59	54	51	44	42	68	65	58	54	49	48	70	68	60	57	52	52	73	72	67	64	59	60
	550	67	62	55	53	46	45	70	68	61	56	50	50	72	70	63	59	54	53	76	74	69	66	61	63
8	300	55	50	47	44	41	37	58	55	52	47	47	45	60	58	55	50	50	48	65	65	65	60	60	68
	400	58	53	49	46	43	39	61	58	53	50	48	46	63	61	56	53	51	49	67	67	66	59	59	58
	500	60	55	51	48	44	41	64	60	54	52	49	47	65	63	57	55	53	50	69	69	67	61	61	60
	600	62	57	52	50	46	42	66	61	56	53	50	48	67	65	59	56	54	52	71	70	68	63	61	62
8	700	64	58	54	51	47	43	68	63	57	55	52	49	69	69	63	59	56	56	73	72	68	64	62	60
	800	66	60	55	52	48	44	69	64	59	56	53	50	71	67	63	60	57	55	74	73	68	65	63	61
	1000	70	63	57	54	50	46	72	67	62	58	55	52	74	71	64	67	58	56	78	75	70	67	65	61
	600	57	53	49	46	44	40	63	59	56	50	49	46	64	62	59	53	51	50	69	70	68	63	59	57
10	800	60	55	52	49	46	42	64	61	57	52	51	48	67	63	60	55	54	52	71	71	69	64	61	59
	1000	63	58	54	51	48	44	67	63	59	54	52	50	69	65	61	57	56	53	74	72	69	64	63	60
	1100	64	58	55	52	48	45	68	64	59	55	53	50	70	68	60	57	52	52	74	73	69	65	64	61
	1200	65	59	55	53	49	45	69	65	60	56	54	51	71	67	63	61	57	55	75	74	70	66	64	62
10	1400	67	61	57	54	50	47	70	67	62	58	55	52	73	69	64	61	58	56	77	75	71	67	65	63
	1600	69	63	59	56	51	48	74	69	65	60	56	53	76	71	67	62	60	57	80	76	73	69	67	64
	800	57	52	49	45	43	40	61	59	58	54	52	50	63	61	61	56	54	52	68	68	68	63	60	59
	1100	61	55	52	48	46	42	65	61	60	55	53	52	67	63	62	58	56	54	71	69	68	65	63	61
12	1400	63	57	54	51	48	44	67	63	61	56	54	52	70	65	63	59	56	54	74	71	71	67	64	62
	1600	65	58	56	52	49	45	69	64	62	57	55	52	71	66	62	59	57	56	75	72	72	68	65	63
	1700	66	59	56	53	49	46	69	64	62	58	55	52	72	67	65	61	59	57	76	73	72	69	66	64
	2000	68	61	58	54	51	47	71	65	64	60	57	53	74	68	66	62	60	57	78	75	73	70	67	66
12	2300	69	63	61	56	52	49	73	67	65	61	58	55	75	70	67	63	60	58	80	76	75	70	68	67
	1100	58	51	49	46	43	40	63	58	54	53	52	52	64	61	57	56	54	54	69	68	67	64	62	62
	1500	61	54	52	48	46	42	65	59	56	54	53	52	67	62	59	57	56	55	72	70	68	65	63	63
	1900	64	57	55	51	47	44	68	62	58	55	54	53	70	64	61	58	56	56	74	71	69	66	64	63
14	2100	65	58	56	52	48	45	69	63	59	56	54	54	71	66	62	59	57	56	76	72	69	67	65	64
	2300	66	59	57	53	49	46	70	63	60	56	55	54	73	67	65	60	58	57	77	73	70	68	66	64
	2700	68	60	59	54	50	47	72	65	62	58	56	55	74	68	65	61	59	51	79	74	72	69	67	65
	3100	70	62	61	56	52	48	74	66	64	60	57	56	76	69	67	62	60	59	80	75	74	70	68	67
16	1600	60	52	51	46	43	41	63	57	54	54	52	51	66	59	57	56	54	53	70	65	64	62	62	60
	2100	63	55	54	49	46	43	67	60	57	55	54	51	69	63	60	58	56	54	73	70	67	65	64	62
	2600	65	57	56	51	47	45	69	63	59	56	54	53	71	66	62	59	57	56	76	74	69	67	67	65
	2800	66	58	57	52	48	45	70	64	60	56	54	53	74	68	65	61	59	58	76	74	70	68	64	65
16	3100	67	59	58	53	49	46	71	65	61	57	55	54	75	69	65	60	58	57	78	75	71	69	67	66
	3600	69	61	9	54	50	47	73	67	63	58	56	54	75	69	66	61	59	57	80	77	73	70	68	67
	4100	71	63	62	56	51	49	75	68	67	60	57	55	77	71	69	62	60	58	81	79	74	70	68	68
	2500	67	63	57	55	55	49	70	68	65	61	61	57	71	71	69	66	63	60	75	76	75	74	72	69
18	3000	68	64	58	57	56	50	71	69	67	63	62	58	72	72	71	67	64	60	76	77	76	75	72	69
	3500	69	66	59	59	58	53	72	70	68	64	64	59	73	73	72	68	66	61	77	78	77	76	73	70
	4500	70	66	61	61	60	56	73	70	70	67	66	62	75	74	74	70	68	64	80	78	79	78	76	72
	5400	71	68	64	63	63	59	74	71	71	69	68	65	75	76	77	73	68	66	82	80	81	81	77	74
18	5500	71	68	64	63	63	59	74	71	71	69	68	65	76	76	77	73	70	67	82	80	81	81	77	74
	6500	73	70	69	66	65	61	76	71	72	70	69	67	78	77	78	75	71	69	85	82	83	83	78	76

- Sound levels are based on dB re: 1 x 10⁻¹² Watts
- The above data is obtained outside the certification programme.
- Discharge Sound Power is the noise transmitted through the casing walls.

Engineering Guidelines

Noise Levels & Static Pressure Drop

Discharge Noise						Radiated Noise		
Unit Size	CFM	Δ Pa	NC			NC		
			(Min. Inlet Static Pressure)			(Min. Inlet Static Pressure)		
			0.5"	1.0"	3.0"	0.5"	1.0"	3.0"
4	100	0.011	12	15	20	< 20	< 23	25
	150	0.011	14	18	30	< 20	< 23	28
	200	0.011	22	23	35	< 20	23	31
	250	0.011	25	26	38	< 20	25	35
5	100	0.011	13	16	25	< 20	< 23	25
	200	0.011	14	18	29	< 20	< 23	29
	300	0.011	23	20	32	20	23	31
	350	0.011	24	22	34	22	24	31
6	200	0.022	12	16	26	< 20	< 23	32
	250	0.031	14	18	29	< 20	< 23	33
	300	0.042	15	18	29	< 20	25	36
	350	0.063	17	19	31	< 20	25	38
	450	0.12	18	21	34	< 20	26	40
	550	0.16	20	24	36	23	28	43
8	300	0.02	10	19	26	< 22	< 23	28
	400	0.02	11	19	26	< 22	< 23	31
	500	0.02	13	21	31	< 22	25	34
	600	0.02	15	21	32	< 22	27	36
	800	0.02	17	23	34	21	27	37
	1000	0.05	21	25	36	23	29	40
10	600	0.015	12	18	32	< 22	23	35
	800	0.015	14	20	34	< 22	25	37
	1000	0.03	16	20	34	< 22	25	38
	1200	0.03	16	22	35	< 22	30	40
	1400	0.03	17	24	38	23	31	42
	1600	0.05	20	25	40	25	33	45
12	800	0.014	12	17	27	< 22	25	35
	1100	0.014	14	18	29	< 22	27	39
	1400	0.03	15	20	31	< 22	30	40
	1700	0.03	17	22	33	< 22	31	42
	2000	0.05	18	23	34	25	32	45
	2300	0.06	20	26	36	27	35	46
14	1100	0.017	11	22	30	< 25	25	33
	1500	0.04	12	24	32	< 25	26	35
	1900	0.05	16	25	34	< 25	28	39
	2300	0.06	18	27	36	< 25	30	44
	2700	0.08	19	29	37	27	32	45
	3100	0.15	21	30	41	28	35	48
16	1600	0.12	15	24	32	< 25	27	36
	2100	0.03	17	26	34	< 25	29	39
	2600	0.05	18	29	37	< 25	32	43
	3100	0.05	20	31	40	28	35	45
	3600	0.07	21	34	42	31	36	49
	4100	0.08	23	37	45	33	38	51

Our OEM Partners



Honeywell



Note : The above OEM Controller's images are indicative only. The actual models and the image displayed above may vary in compatible with the selection of VAV and its applications.

Material Storage, Operation & Maintenance

Receiving, Handling & Storage

The Variable Air Volume needs to be handled carefully while loading or offloading, as per the upright arrow marks given on the unit in the right position. Care should be taken in lifting the product in all 4 corners and placing them on a raised floor level. Don't pull or push the product on the floor level.

Store the product always dry in environment. Do not expose this product into the dust or humid environment.

Never expose this product to temperature exceeding 140°F (60°C). After receiving the VAVs, check for both obvious and hidden damages. If damage is found, record all necessary information and immediately inform to Airwellcare.

Indoor storage and protection from dirt, dust and weather is highly recommended. For safety and protection, follow all instructions and adhere to applicable building and electrical codes.

Safety Warning

Improper installation, adjustment, alteration, service or maintenance can cause property damage, Injury or death. Read the installation, operating and maintenance instructions thoroughly before installing or servicing of this equipment.

Maintenance

VAV's does not typically require maintenance as long as it is kept dry and clean. If cleaning is required, use mild detergents or solvents.

If the lubrication is desired for components such as axle bearings, Shaft bearings etc. do not use oil based lubricants or any other lubricant that attract contamination or any other lubricants that attack contaminants such as dust.

Once the installation is finished, the contractor should note / record complete operation of the VAV's. Also, on the VAV performance the contractor / Building owner should record the readings at every month intervals, the complete operations of the VAV from V-min. to V-max. positions, date, time and maintenance engineer's name and signature.

VAV and their actuator must be maintained, cycled and tested in accordance with:

- The standards of ARI 880 (ETL intertek), NFPA90A and SMACNA.
- Actuator manufacturer recommendations.
- VAV manufacturer recommendations.

Warranty

AIRWELLCARE warrants this equipment to be free from defects in material and workmanship for a period of one year from the purchase date. Any units or parts which prove to be defective during the warranty period will be required or replaced at our option. AIRWELLCARE shall not be liable for damages resulting from misapplication or misuse of its products. AIRWELLCARE shall not be responsible for any installation or removal costs. AIRWELLCARE shall not be responsible for any services work done by a third party or back charges from the direct party.

Trouble Shooting

The following is a possible cause and correction list for common concerns with the Variable Air Volumes.

Symptom	Possible Cause	Correction
VAV does not closing and / or opening	Frame is racked causing blades to bind on frames	Adjust frame such that it is square and plumb
	Actuator linkage loose	Close damper, disconnect power, adjust and tightening linkage
	Loose in wire connection	Close damper, disconnect power, adjust and tightening linkage
	Defective motor	Replace the motor (Actuator)
	Foreign screw in VAV linkage	Check VAV Linkages
	Contaminants on VAV	Cleanwith a non- oil based solvent
Improper Thermostat response	Defective Thermostat	Replace the Thermostat
	Loose Wire Connection	Disconnect the power connection and check the wiring connections
VAV does not work	No power supplied to the Actuator	Add power supply to the device
Reheating coil does not work (optional fittings)	TRD Heated	Reset Manually
	Loose Wire Connection	Disconnect the power and check the wiring connections



Notes

A series of horizontal dotted lines for taking notes, spanning the width of the page below the 'Notes' header.



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