VOLARA ® TYPE A gasket material is sandwiched between damper halves and has high temperature resistance, low moisture absorption and excellent chemical resistance.

Sandwich damper design is mechanically fastened to the damper shaft for low leakage, low noise, and low pressure drops. (Rigid 18 gauge construction.)

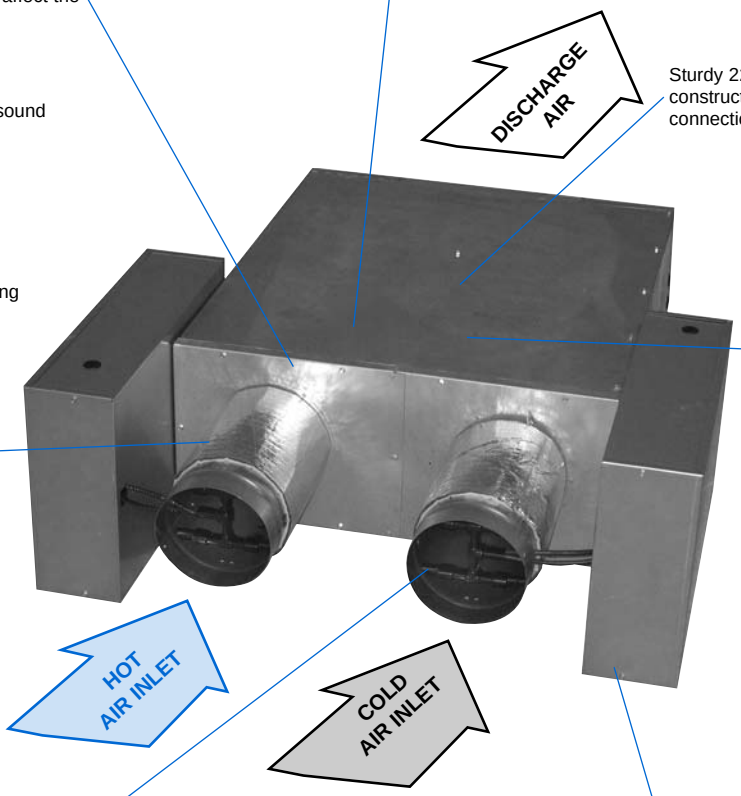
UL listed 1/2" thick insulation meets **UL Test 181** and **NFPA 90A** requirements *(other types available)*.

Carnes maintenance free throttling valve assemblies are isolated from the casing so that distortions in the box will not affect the blade operation.

AHRI certified data available for sound and pressure drop.

Calibration chart for flow measuring and balancing.

Thermally insulated inlet collars.



Sturdy 22 gauge galvanized steel construction suitable for field duct connections with slip and drive cleats.

Solid steel 3/8" damper shaft rotates in oil impregnated sintered bronze bearings.

Internal air mixing baffle.

Slot in damper shaft to indicate damper position.

Controls enclosure.

Tri-Averaging inlet sensor amplifies velocity pressure signals for air flow measuring and pressure independent flow control.

Model ADCC

AHRI CERTIFIED™ www.ahridirectory.org VAV Terminals AHRI Standard 880

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IAQ

IAQ Insulation Available

FROM THE BUILDING DESIGN:

- Refer to the table of contents to locate the appropriate terminal unit for the application. *EXAMPLE: Cooling only — AVC.*
- Select type of external control — manual, pneumatic, electric or electronic, and pressure independent or pressure dependent. *EXAMPLE: Pressure independent pneumatic.*
- Determine minimum ventilation CFM and maximum CFM required for cooling load of zone. (Based on load calculations). *EXAMPLE: Minimum 375 and maximum 1300 CFM.*
- Find the terminal unit CFM ranges and select the terminal unit closest to, but not exceeding maximum CFM rating from **Table 1** below for pressure independent control.
- Determine maximum specified NC level at static pressure Δ Ps in ductwork to be maintained in room. Turn to the performance data of this catalog for the unit that you have selected, to determine pressure drop of unit with damper in wide open, (minimum Δ Ps). Verify that this value is below the specified maximum allowable pressure drop.

  EXAMPLE: a) Specified maximum pressure drop of .25 IWC per unit.

  b) Max. NC 35 at static pressure of 1-1/2".

Also, from performance data, determine the NC value at the duct static pressure. NC is typically determined at max. CFM.

REHEAT

For units requiring reheat accessories (hot water or electric duct heater), see appropriate sections in this catalog.

Examples:

Summary of Customer and Zone Requirements

Cooling ONLY application
Pressure Independent Pneumatic Controls
Minimum CFM = 375
Maximum CFM = 1300
Maximum allowable NC level = NC 35
Static Pressure in duct = 1.5 IWC
Maximum allowable pressure drop = .25 IWC

Unit Selection

Evaluate the maximum CFM desired (1300) and select the unit from Table 1 (Pressure independent). The maximum of 1300 is within the maximum CFM range (900 - 1500) for a size 10" inlet. Verify the minimum CFM (375) is also within the minimum CFM range (300-600) for this same size 10 unit.

BEST SELECTION: SIZE 10

Pressure and Sound Considerations

Turn to performance data for the type of unit needed. Pressure drop at minimum Δ Ps for size 10 at 1300 is .05 and NC at 1.5 IWC static is 28 for discharge and 31 radiated. The AVC size 10 will meet the pressure drop (less than .25) and sound (less than NC 35) requirements for this example.

Pressure Independent Control

Primary Air Inlet Parameters (Pressure Independent Control)
Table 1

Unit Size	Inlet Diameter	Rated CFM	Pneu. Minimum CFM Range	Electronic Min. CFM Range	Maximum CFM Range
05	5"	350	ø or 75 - 140	ø or 45 - 140	210 - 350
06	6"	500	ø or 110 - 200	ø or 65 - 200	300 - 500
07	7"	700	ø or 140 - 280	ø or 85 - 280	420 - 700
08	8"	1000	ø or 185 - 400	ø or 105 - 400	600 - 1000
10	10"	1500	ø or 300 - 600	ø or 155 - 600	900 - 1500
12	12"	2300	ø or 430 - 920	ø or 225 - 920	1380 - 2300
14	14"	3100	ø or 600 - 1240	ø or 335 - 1240	1860 - 3100
16	16"	4200	ø or 780 - 1680	ø or 465 - 1680	2520 - 4200
18*	16" x 18"	5500	ø or 1100 - 2200	ø or 800 - 2200	3300 - 5500
24*	16" x 24"	7300	ø or 1480 - 2920	ø or 1095 - 2920	4380 -7300

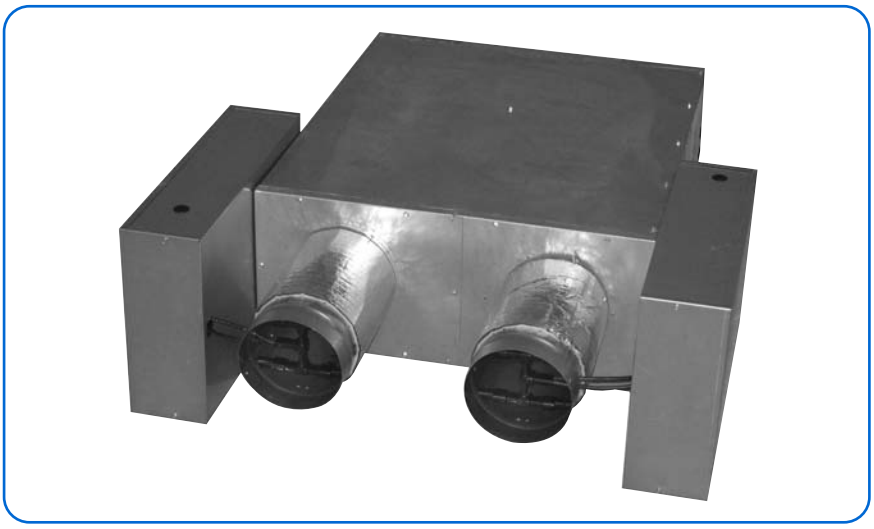
(Discharge Parameters For Model ADCD)
Table 1a

Minimum Discharge CFM *(See Note 6)*	Maximum Discharge CFM
140	350
140	500
170	700
200	1000
380	1500
500	2300
620	3100
780	4200
—	—
—	—

**** For models AV and AB only.***

NOTES:

1. *Rated CFM is based on maximum inlet velocity of approximately 3000 FPM.*
2. *Minimum CFM selection below this value with pressure independent control may provide less than optimum control characteristics. These values are based on an inlet velocity of approximately 365 FPM or less and/or a sensor pressure differential of approximately .035 IWC or less.*
3. *CFM selections out of the recommended maximum or minimum range shown may result in less than optimum control.*
4. *Minimum CFM selection is recommended to be 40% of maximum rated CFM or less.*
5. *Maximum CFM selection is recommended to be 60% of maximum rated CFM or more.*
6. *ADCD discharge minimums below these values will not provide adequate control.*
7. *Minimum CFM for units with electric coils will vary based on kilowatts and area. See electric duct heater section for details.*



▼ Model ADCC

The Carnes Model ADCC dual duct VAV unit contains two valves providing low pressure drop and low sound level. Hot and cold duct valves are independently controlled. Throttling valves are installed in an attenuator mixing section for low noise and temperature mixing. Optional pressure independent reset volume controllers accurately control the hot and cold duct air flows.

A common thermostat controls the individual reset volume controllers. Selections of proper controllers and pneumatic devices allow sequences of operation adjustable mixing and no mixing applications. *(See ADCD design for constant volume applications).*

Hot and cold throttling valves can be factory set for normally open or normally closed configurations, compatible with direct or reverse acting thermostats.

A wide range of available control sequences makes the Carnes dual inlet VAV unit acceptable to most energy saving system design.

Features Include:

- Air flow capacities from full shut-off to 4,200 CFM (0-3,000 FPM for each unit size).
- Open-end discharge units are provided with slip and drive connections for easy installation.
- Thermally and acoustically insulated casing meets **UL** and **NFPA** standards.
- Hot and cold throttling valves are independently controlled.
- Low leakage damper design.
- Integral attenuator/temperature mixing section.
- Tri-Averaging type air flow sensor at unit inlets.
- Optional pressure independent and pressure dependent controls.
- Optional pressure independent pneumatic variable mixing or deadband controls.
- Optional pressure independent reset volume controller accurately control hot and cold air flows.
- Optional controls enclosure.
- Optional fiber-free liner.
- Optional foil coated internal insulation.
- Optional hanger brackets (Sizes 0505-1010 only).
- AHRI certified product.

Available Modules:

- Basic Control Unit — **Model ADCC**
- Sound Attenuator — **Model AXA**

IAQ Insulation Available

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