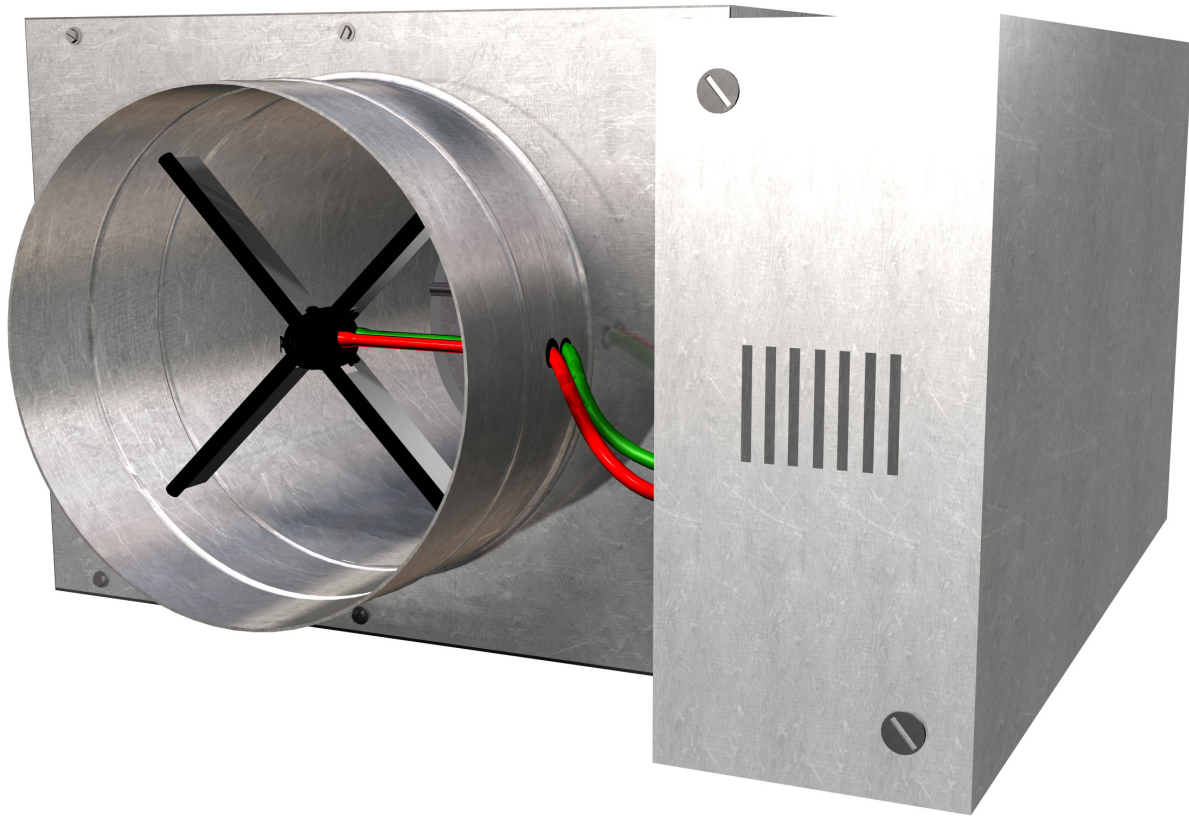


jon@comfortar.com



MANUAL – INSTALLATION

Single Duct Variable Volume Control Assemblies - Direct Digital Controls

SDV Series

v200 – Issue Date: 10/04/22

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PRICE[®]

SINGLE DUCT VARIABLE VOLUME CONTROL ASSEMBLIES

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SINGLE DUCT VARIABLE VOLUME CONTROL ASSEMBLIES

PRODUCT OVERVIEW

General

The SDV assembly is designed to accept Direct Digital Controls (DDC) for VAV pressure independent operation.

The terminal unit controls are supplied by the controls contractor and either factory or field mounted and wired.

For information concerning controls, components, sequence of operation, etc., please refer to the documentation provided by the controls contractor.

Receiving Inspection

After unpacking the assembly, check it for shipping damage. If any shipping damage is found, report it immediately to the delivering carrier. During unpacking and installation do not handle by the inlet velocity sensor, damper shaft, or tubing. Damage may result.

Wiring

If controls have been factory mounted, a wiring diagram will be included with the unit indicating the factory mounted components. For field wiring of room sensors and other accessories, refer to the controls contractor's documentation. If the controls have been field mounted, refer to the controls contractor's documentation for all wiring information.

Damper rotation is always clockwise to the open position. An identification mark on the end of the shaft indicates the damper position.

The factory supplied sensing lines are color coded. Red indicates the total pressure or "HI" line which should be located on the upstream side. Green indicates the static pressure or "LO" line which should be located on the downstream side.

An optional protective enclosure may be provided to house the terminal unit control components. The enclosure cover is removable with two sheet metal screws.

The velocity sensor is normally supplied as standard with the terminal unit. However, in some cases a flow sensing device supplied by the controls contractor may be factory or field mounted. Refer to the submittal drawing for illustration.

The air volume ranges listed are recommended for optimum performance. A minimum value of zero is also acceptable if no heating coils are attached.

Selection of air flow limits below the listed values is not recommended. Stability and accuracy may not be acceptable at lower than recommended air flow limits. The actual performance will vary depending on the terminal unit controls supplied.

SDV ▼

FIGURE 1: SIDE MOUNTED CONTROLS - STANDARD CONSTRUCTION

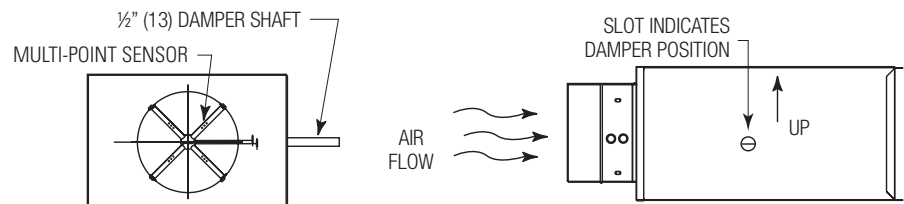


FIGURE 2: BOTTOM MOUNTED CONTROLS - CB

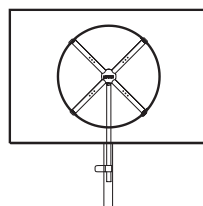
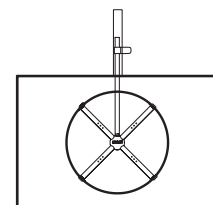


FIGURE 3: TOP MOUNTED CONTROLS - CT



SINGLE DUCT VARIABLE VOLUME CONTROL ASSEMBLIES

INSTALLATION INSTRUCTIONS

Installing the SDV Terminal Unit

The basic SDV is light enough that it can be supported by the ductwork in which it is installed. Where accessory modules, such as coils, attenuators or multiple outlets are included, the assembly should be supported directly. Use the support method prescribed for the rectangular duct in the job specifications.

NOTE: For optimum performance there should be a minimum of three duct diameters of straight inlet duct, **same size as the inlet**, between the inlet and any transition, take off or fitting.

The assembly should be mounted right side up. It should be level within ± 10 degrees of horizontal, both parallel to the air flow and at right angles to the air flow. The side of the assembly is labelled with an arrow indicating UP. Do not mount the control side of the assembly tight to a wall, pipe or other obstruction. Allow sufficient room for access to the controls.

NOTE: If CB (controls bottom mounted) option is chosen, then the housing is to be installed as noted above with exception of the damper shaft being oriented to the bottom of the housing. If the CT (controls top mounted) option is chosen, then the housing is to be installed as noted above with the exception of the damper shaft being oriented to the top of the housing.

To prevent excess air leakage, all joints should be sealed with an approved duct sealer. This would apply to all accessory module connections as well as the basic assembly.

Air Volume Ranges

Unit Size	CFM Min - Max	L/S Min - Max
4	45-400	21-189
5	60-500	28-236
6	65-550	31-260
7	95-800	45-378
8	125-1100	59-519
9	160-1400	76-661
10	210-1800	99-850
12	300-2600	142-1227
14	430-3700	203-1746
16	575-5000	271-2360
24 x 16	1185-8400	559-3964

NOTE: Factory calibrated controls must be selected within the above flow range limits. A minimum value of zero is also available. When an auxiliary flow setting is specified, the value must be greater than the minimum setting and within the range limits.

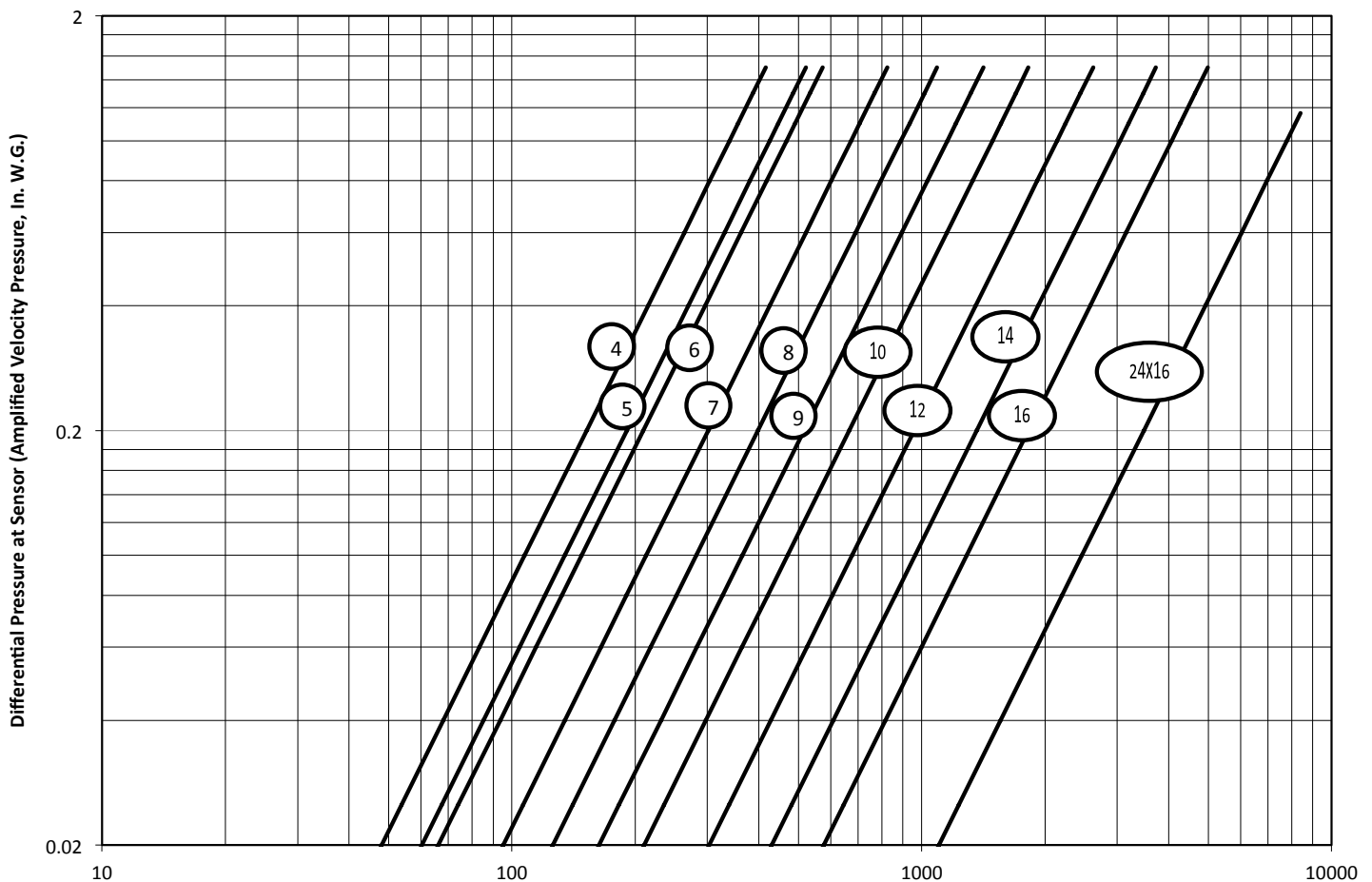
On controls mounted by Price but supplied by others, the air volume ranges are guidelines only.

Selection of air flow limits below the listed values is not recommended. Stability and accuracy may not be acceptable at lower than recommended air flow limits. The actual performance will vary depending on the terminal unit controls supplied.

SINGLE DUCT VARIABLE VOLUME CONTROL ASSEMBLIES

INSTALLATION INSTRUCTIONS

SP300 Calibration Curves



Air Flow: CFM at Standard Density

Calibration Equation

$$VP = \left(\frac{Q}{K}\right)^2$$

VP - differential pressure
at sensor, inches w.g.

Q - air flow rate, cfm
at standard density.

K - calibration constant

Unit Size	K
4	340
5	426
6	468
7	673
8	890
9	1155
10	1487
12	2141
14	3045
16	4074
24 x 16	7785

1. Setting flow limits for a differential pressure of less than 0.02 inches is NOT recommended. Stability and accuracy of flow limits may not be acceptable due to low velocity pressure signal. Performance will vary depending on the terminal unit controls provided.
2. For field calibration of air flow limits refer to the control contractor's documentation.

SINGLE DUCT VARIABLE VOLUME CONTROL ASSEMBLIES

MAINTENANCE

SP300 Removable Sensor Maintenance Instructions

1. Detach SP300 high and low signal tubing between sensor and controls at the tee connections as shown in Figure 1.
2. Undo latches holding sensor in unit and remove sensor as shown in Figure 2.
3. Clean sensor by blowing compressed air through both HIGH and LOW signal tubing.
4. Wipe off any foreign particles with a clean rag.
5. Reinstall sensor into unit ensuring that it is in the correct orientation and fasten latches to securely hold sensor in unit.

FIGURE 1 ▼

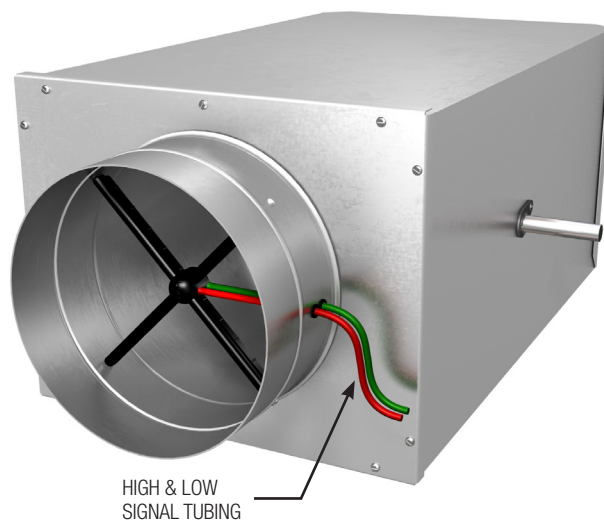
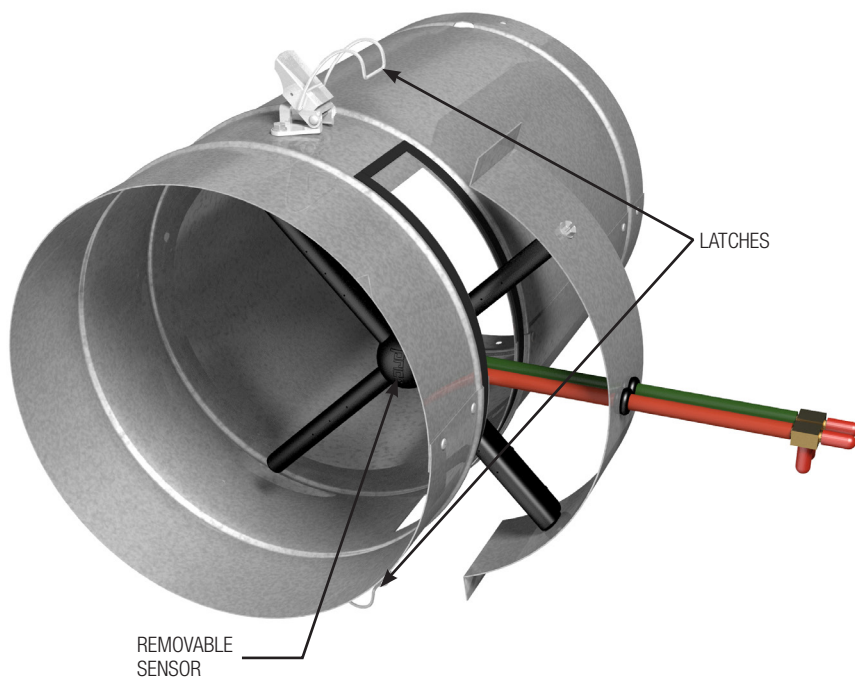


FIGURE 2 ▼



SINGLE DUCT VARIABLE VOLUME CONTROL ASSEMBLIES

MAINTENANCE

Replacement Parts

Component	Part#	Description
Removable SP300 Sensor	041688-001	Sensor SP300, Sizes 4,5 & 6
	041688-002	Sensor SP300, Size 7
	041688-003	Sensor SP300, Size 8, Size 24x16 (qty. 4 required)
	041688-004	Sensor SP300, Size 9
	041688-005	Sensor SP300, Size 10
	041688-006	Sensor SP300, Size 12
	041688-007	Sensor SP300, Size 14
	041688-008	Sensor SP300, Size 16
	247072-001	Duct Cover for Removable Sensor Sizes 4,5 & 6
	247072-002	Duct Cover for Removable Sensor Size 7
	247072-003	Duct Cover for Removable Sensor Size 8
	247072-004	Duct Cover for Removable Sensor Size 9
	247072-005	Duct Cover for Removable Sensor Size 10
	247072-006	Duct Cover for Removable Sensor Size 12
	247072-007	Duct Cover for Removable Sensor Size 14
	247072-008	Duct Cover for Removable Sensor Size 16
	203132-999	.250" Green Tubing, Low Signal
	203136-999	.250" Red Tubing, High Signal
	041510-001	Rubber Grommet RB-215
	041683-001	Tee, Brass, .250" x .250" x .250"

This document contains the most current product information as of this printing.
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CROMWELL

SUBMITTAL REVIEW FORM

1300 EAST 6TH STREET
LITTLE ROCK, AR 72202
PHONE: 501-372-2900
FAX: 501-372-0482

Reviewing is only for conformance with the design concepts of the Project and compliance with the information given in the contract documents. The Contractor is responsible for dimensions to be confirmed or correlated at the site; for information that pertains solely to the fabrication process, or to the means, methods, techniques, sequences, and procedures of construction; and for coordination of the work of all other trades

JOB TITLE: CARTI Bridge Patient Resource Center

JOB NO: 2020-171

SUBMITTAL NO: 233600 Air Terminal Units PD

BY: JDG

DATE: 07-05-2023

Item No.	Description (See contractor transmittal for corresponding description)	No Exception Taken	Make Corrections Noted	Revise and Resubmit	Not Accepted	Comments
1	Air Terminal Units	x				



Submittals

Job Name: CARTI Bridge Patient Resource Center
Job Location: Little Rock, AR
Customer: Edwards Metals
Date Printed: 5/9/2023
Spec Section: 15 - HVAC

Contact: Airetech Corporation
7631 Northshore Place
N. Little Rock, AR 72118

Phone: 501-280-0404
Email: dustin@airetechcorp.com



All-In-One Detailed Submittal Schedule

Tag	ST-280	ST-281
#	1	2
Qty	1	1
Model	SDV	SDV
Size 1	10	10
Unit Size	10	10
Inlet Dia	10	10
Max Primary (CFM)	900	900
Min Primary (CFM)	225	225
Heat Min (CFM)	0	0
Heat Max (CFM)	0	0
Inlet SP (in. w.g.)	1.00	1.00
Differential PD (in. w.g.)	0.38	0.38
Downstream SP (in. w.g.)	0.25	0.25
Max Dis NC	--	--
Min Dis NC	--	--
Terminal Liner	FG50	FG50
Reheat (CFM)	450	450
WC Capacity (MBH)	19.60	19.60
EAT (°F)	55.00	55.00
Return Air Temp (°F)	75.00	75.00
LAT (°F)	95.00	95.00
Coil Amps	0	0
Fluid Flow (GPM)	0.66	0.66
FPD (ft. w.g.)	0.13	0.13
Fluid Type	WTR	WTR
Rows	2R	2R
EWT (°F)	180.00	180.00
LWT (°F)	118.70	118.70
Circuits	2	2
Coil	WC	WC
Sequence	2000	2000
Aux/Fan/Mix (CFM)	450	450
Accessories 2	CRH	CRH
Accessories 5	HB	HB
Accessories 6	DSW	DSW
Weight (lbs)	29	29

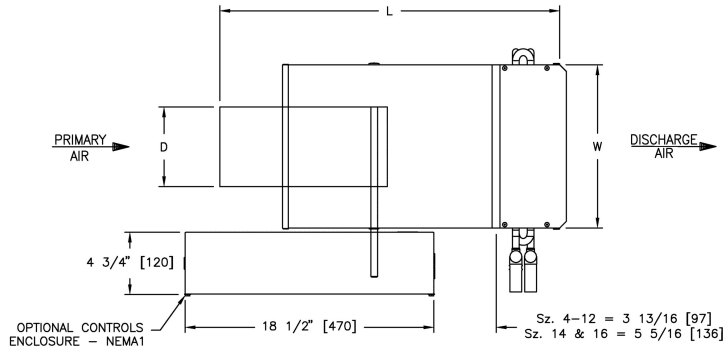


Performance Notes

Date Printed: 5/9/2023

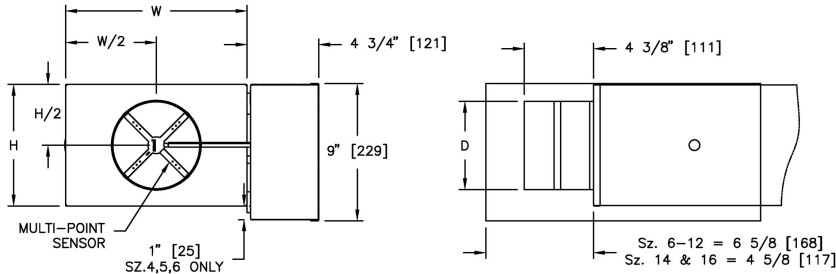
1. Dashes (--) indicate NC values less than 20.
2. NC values are calculated based on procedures outlined in AHRI Standard 885-2008, "A Procedure for Estimating Occupied Space Sound Levels in the Application of Air Terminals and Air Outlets."
3. Sound power levels are given in decibels (dB).
4. Dashes (--) indicate sound power levels below 36-29-26-22-19-17 for each octave band; values below these sound power levels are considered below significance per AHRI 880.
5. Minimum operating pressure is the minimum static pressure required to operate the terminal item assembly at maximum primary flow with a wide open damper.
6. Airflow is given in cubic feet per minute (cfm).
7. Air pressure drop is given in inches water gauge (in. w.g.), and water pressure drop is given in feet of water gauge (ft. w.g.).
8. NC values are derived from sound power levels obtained in accordance with ASHRAE Standard 130-2016 and AHRI Standard 880-2017, which include duct end reflection corrections.
9. Water coil performance is rated and certified in accordance with the latest edition of AHRI Standard 410.

SDV Single Duct w/ Hot Water Coil



Unit Size	Casing Size	Inlet		Casing		Length
		D	E	W	H	L
10	10	9 7/8	N/A	14	12 1/2	25 1/8

Controls Type



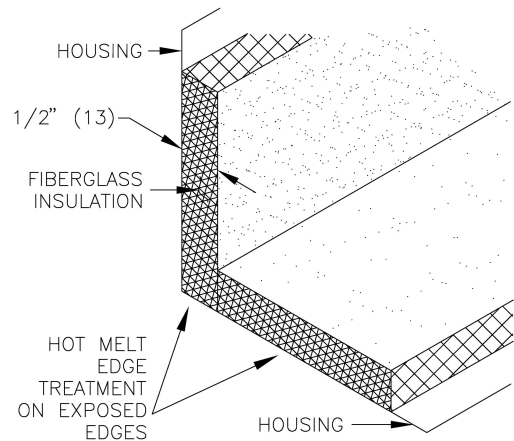
- Multi-point, center averaging airflow sensor.
- Controls enclosure will be supplied as illustrated on right hand side.
- Controls are supplied by controls contractor and field installed.
- DSW - Disconnect switch included.
- PS - Nema 1 controls enclosure included.
- Pressure independent

Notes

- 22 Gauge zinc coated steel housing. Mechanically sealed, leak resistant construction.
- Rectangular discharge opening with slip and drive cleat duct connection.
- Assembly ETL certified to UL50.
- Damper blade constructed of two layers of galvanized steel with a sandwiched peripheral gasket.
- 1/2" (13) diameter zinc coated damper shaft with position indicator.
- Units not to be used for temporary heat or ventilation during construction.

Insulation: FG50

- Internal Insulation – Fiberglass 1/2" (13mm) thick, 1.75 lb/cu.ft density, meets requirements of NFPA90A and UL 181.
- R-Value=2.1



PROJECT: CARTI Bridge Patient Resource Center

ENGINEER:

DESCRIPTION: Single Duct Variable Volume

SDV-1-1//10/FLD//CFM/CRH/FG50//22GA/PS/WC/2R//0.00//0.0//225/900/0/0/450//HB//DSW//2000

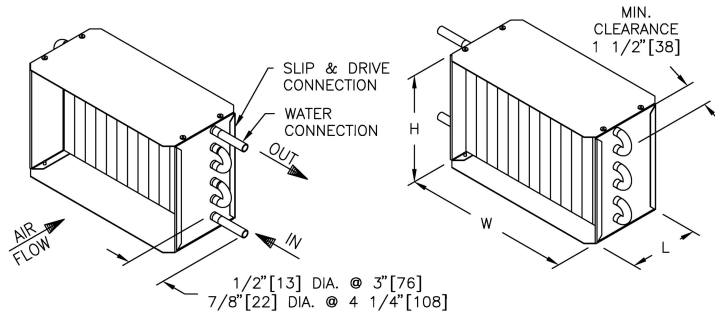
SUBMITTAL NO: 269757-B

CUSTOMER: Edwards Metals

SUBMITTAL DATE: 5/9/2023

Water Coil: 2R

2 Row Right Hand



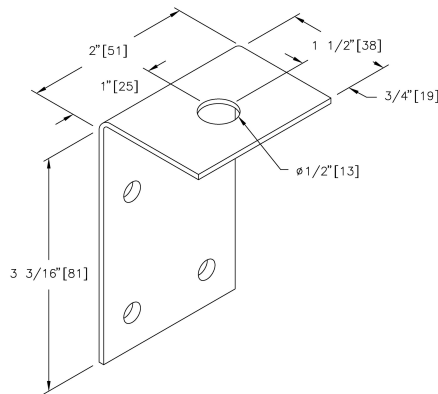
Unit Size	Coil Rows	W	H	L	Coil Connection
10	2	14	12 1/2	5	7/8

*Hand of water coil connections is determined when viewed from air inlet side.

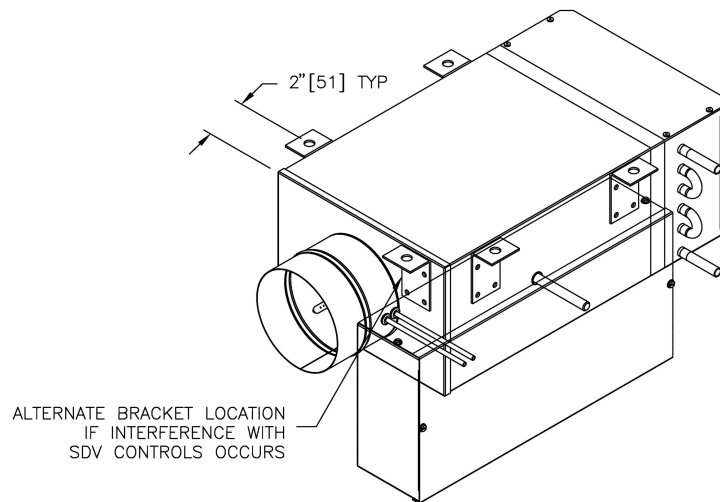
Water Coil Notes

- Fabricated from 22 gauge galvanized steel. Mechanically sealed, leak resistant construction.
- Hot water coils have copper tubes and aluminum fins with O.D. sweat connections.
- Refer to submitted terminal unit schedule for air volumes and reheat coil capacities.
- Method of venting reheat coil is to be provided by installing contractor.
- Water coil handing matches unit handing.
- Configuration of coil connection varies with size & rows of coil.
- Water coil performance rated and certified in accordance with the current edition of AHRI standard 410.
- Standard coils supplied with 10 fins per inch.

Hanger Bracket: HB



Suggested HB Location



PROJECT: CARTI Bridge Patient Resource Center

ENGINEER:

DESCRIPTION: Single Duct Variable Volume

SDV-1-1///10/FLD///CFM/CRH/FG50//22GA/PS/WC/2R///0.00////////0.0////////225/900/0/0/450////HB//DSW////////2000

SUBMITTAL NO: 269757-B

CUSTOMER: Edwards Metals

SUBMITTAL DATE: 5/9/2023