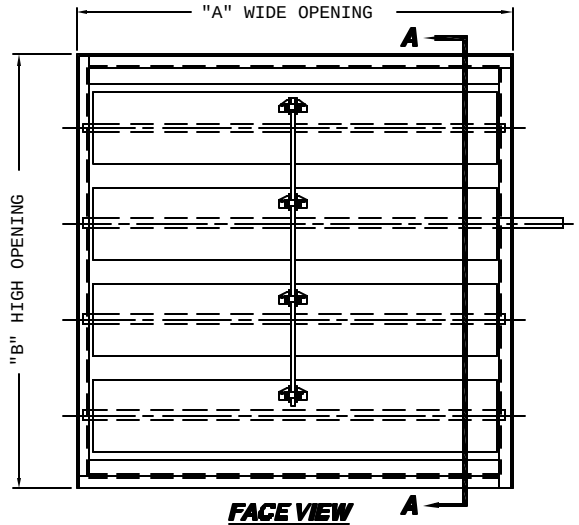
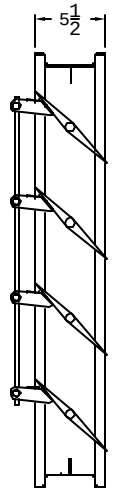
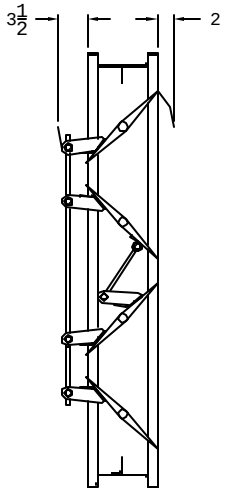
VOLUME CONTROL DAMPER, AIRFOIL BLADES, GALVANIZED STEEL CONSTRUCTION, 200°F MAX. TEMP.



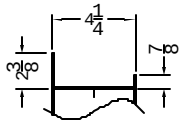
FACE VIEW
FLOW ENTERING FACE



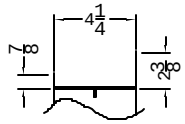
VC-30
PARALLEL BLADE



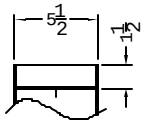
VC-31
OPPOSED BLADE



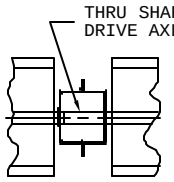
OPTIONAL
STANDARD FLANGE



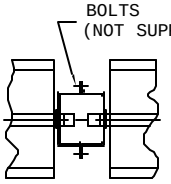
OPTIONAL
REVERSE FLANGE



OPTIONAL
CHANNEL FRAME



FACTORY
ASSEMBLED MULLION



FIELD
ASSEMBLED MULLION

AWV ITEM No.	QUANTITY	MODEL TYPE VC-30 OR VC-31	"A" WIDE OPENING	"B" HIGH OPENING	CONSTRUCTION OPTIONS: BEARINGS: S.S. SLEEVE (350°F)	BEARINGS: TEFLON SLEEVE (250°F)	BEARINGS: O.I.B. SLEEVE (300°F)	BEARINGS: PRESS FIT BALL (250°F)	BEARINGS: EPT BLADE (150°F)	SEALS: SILICONE BLADE (450°F)	SEALS: STAINLESS STEEL JAMB (350°F)	LINKAGE: 300 SERIES STN. STEEL	LINKAGE: 316 STEEL	AXLES: 304 STN. STEEL	AXLES: 316 STN. STEEL	FLANGED FRAME (STD/REVERSE, BOTH)	REMARKS

VC-30 & 31 STANDARD SPECIFICATIONS

FRAME: 5-1/2" x 7/8" x 16 GAUGE GALVANIZED STEEL HAT CHANNEL. DAMPERS WITH A "B" DIMENSION OF 13" OR LESS WILL HAVE A FLAT 10 GAUGE GALVANIZED STEEL PLATE AT HEAD AND SILL.

BLADES: 18 GAUGE GALVANIZED STEEL, 9-1/2" MAX. WIDTH.

AXLES: 1/2" DIAMETER PLATED STEEL FULL LENGTH, THRU 33" WIDE.
3/4" DIAMETER PLATED STEEL FULL LENGTH, ABOVE 33" WIDE.

BEARINGS: HEAVY DUTY SELF-LUBRICATING NYLON. (200 ° F)

LINKAGE: PLATED STEEL BRACKETS, BRASS BARRELS AND 5/16 DIA. PLATED STEEL ROD. DAMPERS WITH SEALS HAVE DOUBLE LINKAGE ON PANELS OVER 36" WIDE.

STOPS: 16 GAUGE GALVANIZED STEEL.

FINISH: MILL WITH TOUCH UP ON WELDS.

ACTUATOR: AN EXTENDED SHAFT IS STANDARD.

NOTES

1. DESIGN CRITERIA:
   MAX. VELOCITY: 3000 FPM / 15 m/s
   MAX. DIFF. PRESS.: 4" W.G. / 1000 Pa
   MAX. TEMP.: 200 °F / 95°C (W/O SEALS); 150 °F / 60°C (W/ SEALS)
2. MAX. PANEL SIZE: 48" W x 96" H (W/O SEALS); 48" W x 72" H (W/ SEALS)
   MIN. PANEL SIZE: 6" W x 6" H (PARALLEL); 6" W x 12" H (OPPOSED)
3. "A" AND "B" DIMENSIONS ARE OPENING SIZES. DAMPERS WILL BE FABRICATED 1/4" UNDERSIZE.
4. HORIZONTAL BLADES ARE STANDARD, UNLESS OTHERWISE SPECIFIED.
5. BLADES ARE ALWAYS PARALLEL TO THE "A" DIMENSION.
6. DAMPERS LESS THEN 12" HIGH WILL HAVE ONE BLADE.
7. DAMPERS OVER 48" HIGH WILL HAVE TIE RODS.
8. ANY VARIATION TO THE STANDARD SPECIFICATIONS MUST BE FACTORY APPROVED IN ADVANCE.
9. SEE REVERSE SIDE FOR PERFORMANCE DATA.

REV.	DESCRIPTION	DATE	BY

DATE :

AWV PROD. No. :

CUSTOMER :

CUSTOMER ORDER No. :

AGENT :

AGENT ORDER No. :

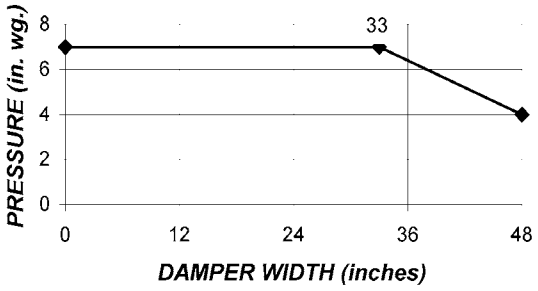
awv american warming and ventilating
A MESTEK COMPANY
7301 INTERNATIONAL DRIVE HOLLAND, OHIO

VC-30 & 31 VOLUME CONTROL DAMPERS

DRN. BY	DWG. NO.	REV.
PRE	VC-30-1	
DATE 8-3-10		

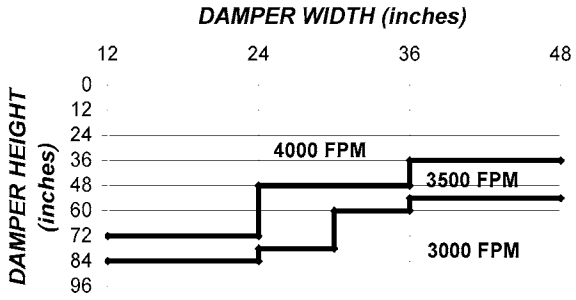
PRESSURE LIMITATIONS:

The pressure limitations shown below are based on the design limits of the axles or blade deflection. Another model should be selected if pressure exceeds the values shown.

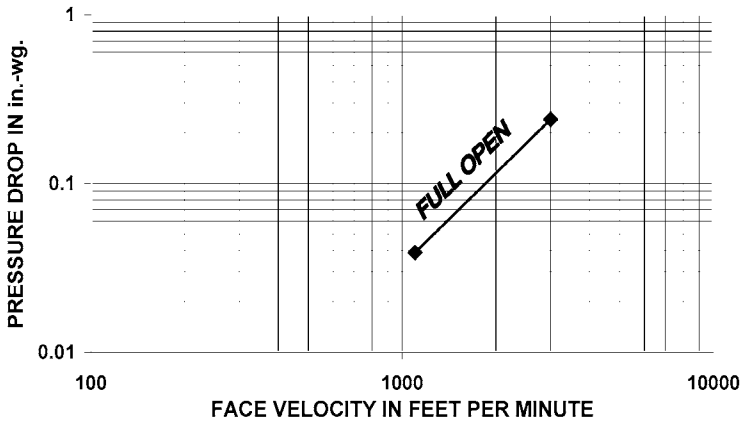


VELOCITY LIMITATIONS:

The pressure limitations shown below are based on the design limits of the axles or blade deflection. Another model should be selected if pressure exceeds the values shown.



PRESSURE DROP: TYPICAL PERFORMANCE CURVE



TESTED PER AMCA
STANDARD 500;
FIGURE 5.3: (IN-DUCT MOUNT)
SIZE TESTED - 24" x 24"

LEAKAGE:

Quantities are derived from tests performed in accordance with AMCA Standard 500. The values shown in the chart are stated in SCFM at 1" wg. Use of the conversion factors below will give leakage values at greater pressures. For lower leakages, consult our representative or factory customer service department prior to selection.

PRESSURE (in. wg.)	CONVERSION FACTOR
2	1.41
3	1.73
4	2
5	2.24
6	2.45
7	2.64

LEAKAGE IN SCFM

	VC-30/31 WITHOUT SEALS				VC-30/31 WITH SEALS			
	DAMPER WIDTH (INCHES)				DAMPER WIDTH (INCHES)			
	12	24	36	48	12	24	36	48
12	85	95	105	115	15	20	25	30
24	205	250	295	335	20	25	35	40
36	315	370	425	475	30	40	45	55
48	425	490	555	620	35	45	55	65
60	540	630	715	800	45	60	75	85
72	650	750	845	940	55	70	85	100
84	760	870	975	1080				
96	875	1005	1135	1260				

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VC-30/31 TORQUE DATA

Torque Values are given in in.-lbs.

	SEAL TORQUE Damper Width in.				PRESSURE TORQUE Damper Width in.				VELOCITY TORQUE Damper Width in.			
	12”	**24”**	**36”**	**48”**	**12”**	**24”**	**36”**	**48”**	**12”**	**24”**	**36”**	**48”**
12”	24	39	54	69	1	3	4	5	1	1	2	3
24”	45	71	96	121	2	5	7	10	2	3	5	7
36”	68	106	144	182	3	8	12	16	3	6	10	13
48”	90	140	190	239	5	11	16	22	4	10	15	20
60”	111	171	232	293	6	13	21	28	5	11	17	24
72”	132	205	277	350	7	16	25	34	7	14	22	30
84	x	x	x	x	9	19	29	40	8	18	27	37
96	x	x	x	x	10	22	34	46	9	19	30	40
					Pressure Torque shown on chart is for 1 in. wg. use multipliers for higher pressures				Velocity Torque shown on chart is for 1000 fpm. Use multipliers for higher velocity			

Note: Care should be taken in designing systems requiring higher pressures and higher velocities which, in turn, will elevate the operating torque of the dampers. The shaded areas above depict dampers that may exceed the design limits of extended shaft operation (250 in./lbs. max.). When this value is exceeded the use of “in-duct" or jack-shafted actuators is required.

Above values are based on 1 in. wg. differential pressure. Use multipliers below for greater pressures.

DIFFERENTIAL PRESSURE	MULTIPLIERS
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
12	12
13	13
14	14
15	10

Above values are based on 1000 fpm face velocity. Use multipliers below for greater velocities.

FACE VELOCITY (fpm)	MULTIPLIERS
1500	2.25
2000	4
2500	6.25
3000	9
3500	12.25
4000	26
4500	20.25
5000	25
5500	30.25
6000	36

The torque required to operate a VC 30/31 control damper is the greatest torque value that the damper will see in operation. The tables shown give torque values for various face velocities,differential pressures, and sealing requirements. The torque required for a damper without seals is the torque due to velocity or pressure, whichever is greater. The torque required for a damper with seals is the torque due to velocity or pressure, whichever is greater. The torque required for a damper with seals is the torque due to velocity, pressure or sealing the damper, whichever is greater.

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