

CONTROL DAMPERS
Heavy Duty 16 Ga. Steel Blade

OPPOSED BLADE - PARALLEL BLADE DAMPER

Suggested Specifications:

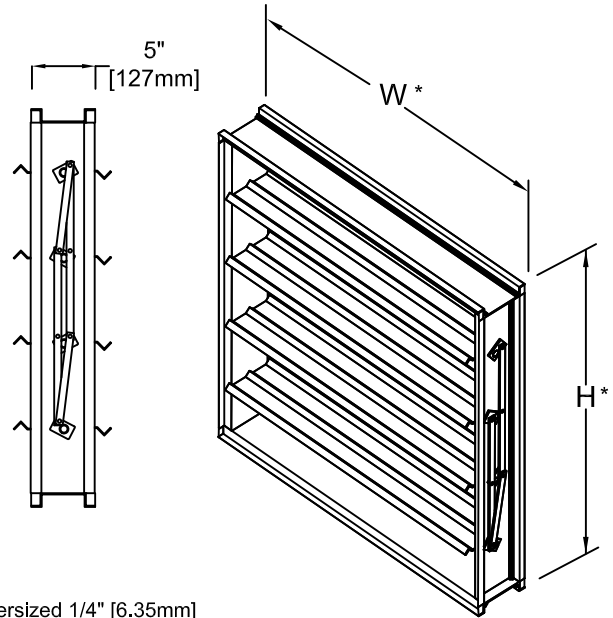
Furnish and install at location shown on drawing or in accordance with schedules dampers meeting the following specifications: Rectangular damper shall have 16 gauge galvanized steel blades with galvanized steel rollformed frames. Damper to be equal to United Enertech MODEL CD-110 or CD-111.

Ratings:

Pressure - up to 8" [203mm] w.g.

FPM Table

12" wide	- 3500 FPM
24"	- 2800
36"	- 2300
48"	- 2100



Standard Features:

Frame: Rollformed Galvanized Steel

Blades: 4"-7" [102mm - 178mm]wide,
16ga. Galvanized Steel

Bearing: Nylon

Linkage: Concealed in frame

Axles: 3/8" [9.52mm] square plated steel

Control Shaft: Ø1/2" x 4-1/2" [13mm x 114mm] long shaft supplied with all single section dampers for field mounted actuators. Factory-installed jackshaft supplied with all multiple section dampers

*Undersized 1/4" [6.35mm]
 Minimum Size: 6"w x 6"h [152mm x 152mm]
 Maximum Size: 48"w x 60"h [1219mm x 1524mm] (single section)
 9" [229mm]h and under - single blade
 Maximum multi-section: unlimited

Options:

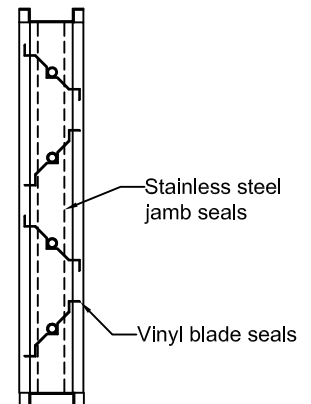
- Blade Seals PVC (180° F) [82° C]
- Compression Jamb Seals (stainless steel)
- Header Plates (end flange)
- Hand Quadrant
- Stand Off Bracket, 2" [51mm]
- Factory Installed Pneumatic or Electric Actuators (see cat. sheet H-1)
- Face and Bypass Damper
- Chain Operator
- Position Switch
- Flange frame (one side)
- *Telescoping Shaft (Dampers 32"w max.)
 (*Shaft slides into airstream for ease of installation.)

AVAILABLE FINISHES:

- Epoxy Powder
- Heresite Coat



OPTIONAL:



Job Name:	<input type="checkbox"/> MODEL CD-110 (Opposed)		
Location:	<input type="checkbox"/> MODEL CD-111 (Parallel)		
Architect:	DRAWN BY: GAB	DATE: March 2014	REV. DATE:
Engineer:	REV. NO.	APPROVED BY: BGT	DWG. NO.: A-3
Contractor:			

MODEL CD-110 PERFORMANCE DATA

Imperial Units (Forward Flow)

Damper Width X Height	1 in. w.g. Class	4 in. w.g. Class	8 in. wg Class	*Torque (per sq. ft.)
12" X 48"	Class 1A	Class 1	Class 1	11.5 lbs-in
48" X 36"	Class 1A	Class 1	Class 1	11.33 lbs-in

Air leakage is based on operation between 50° F to 104° F. All data corrected to represent air density of 0.075 lbs/ft³

Imperial Units (Reverse Flow)

Damper Width X Height	1 in. w.g. Class	4 in. w.g. Class	8 in. wg Class	*Torque (per sq. ft.)
12" X 48"	Class 1A	Class 1	Class 1	11.5 lbs-in
48" X 36"	Class 1A	Class 1	Class 2	11.33 lbs-in

*Torque applied to hold damper in closed position

Standard International Units (Forward Flow)

Damper Width X Height (mm)	250 Pa Class	1 KPa Class	2 KPa Class	*Torque (per sq. m.)
305 X 1220	Class 1A	Class 1	Class 1	13.97 N-m
1220 X 915	Class 1A	Class 1	Class 1	13.77 N-m

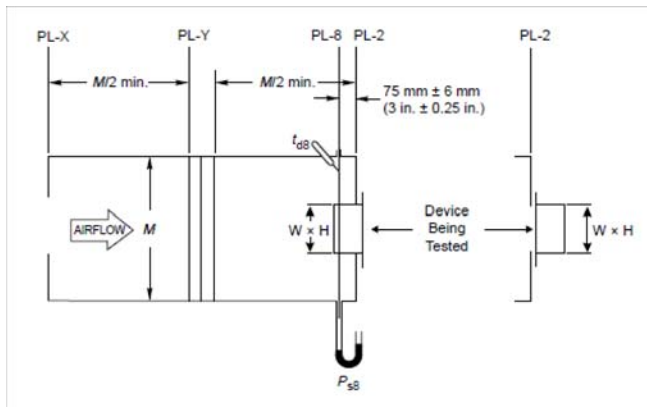
Air leakage is based on operation between 10° C to 40° C. All data corrected to represent air density of 1.201 kg/m³.

Standard International Units (Reverse Flow)

Damper Width X Height (mm)	250 Pa Class	1 KPa Class	2 KPa Class	*Torque (per sq. m.)
305 X 1220	Class 1A	Class 1	Class 1	13.97 N-m
1220 X 915	Class 1A	Class 1	Class 2	13.77 N-m

*Torque applied to hold damper in closed position

Air leakage is based on operation between 50° F to 104° F. All data corrected to represent air density of 0.075 lbs/ft³. Tested per AMCA Standard 500-D (leakage), figure 5.4 Alternate.



AMCA Standard 500-D (leakage), figure 5.4 Alternate.



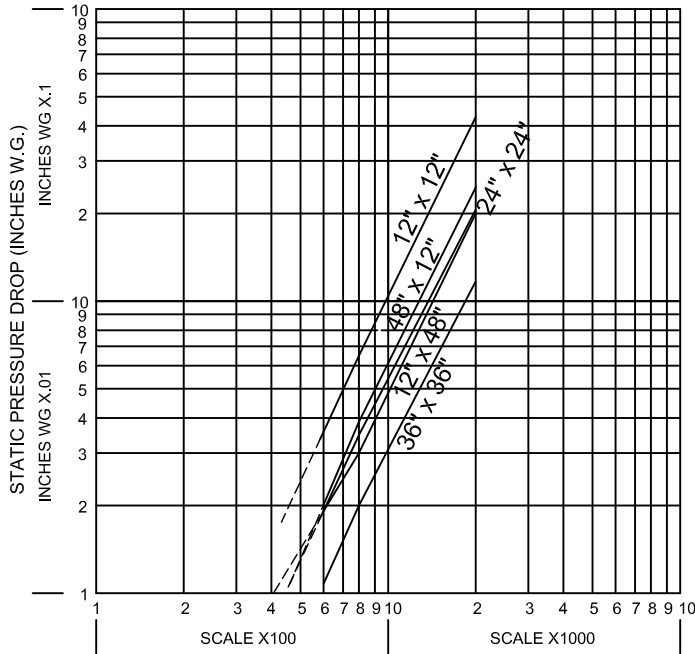
United Enertech certifies that the CD-110 is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 511 and comply with the requirements of the AMCA Certified Ratings Program. The AMCA Certified Rating Seal applies to Air Performance and Air Leakage ratings.

Pressure Class	Leakage, ft ³ /min /ft ²			
	Required Rating	Extended Ranges (optional)		
	1"	4"	8"	12"
1A	3	n/a	n/a	n/a
1	4	8	11	14
2	10	20	28	35
3	40	80	112	140

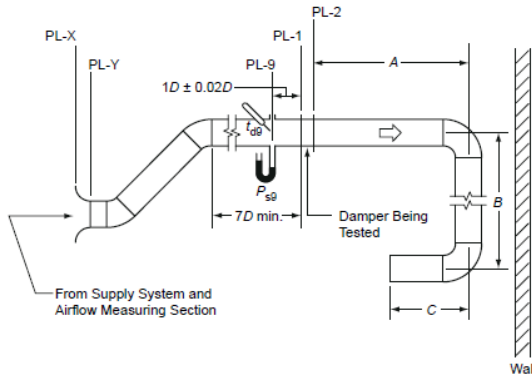
All data corrected to represent standard air at a density of 0.075 lbs/ft³

MODEL CD-110, 111 PERFORMANCE DATA

AIR FLOW RESISTANCE



CD-110, 111 sizes: 12" x 12", 24" x 24", 48" x 12", 12" x 48", 36" x 36"
 (305 x 305mm, 610 x 610mm, 1219 x 305mm, 305 x 1219mm, 914 x 914mm)
 Data corrected to standard air density
 Pressure drop test per AMCA Standard 500-D, Figure 5.3.



AMCA Figure 5.3 Pressure Drop



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United Enertech certifies that the CD-111 is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 511 and comply with the requirements of the AMCA Certified Ratings Program. The AMCA Certified Rating Seal applies to Air Performance ratings only.

Face Velocity		Pressure Drop	
fpm	(m/s)	inches w.g.	(Pa)
607	3.10	0.02	5
802	4.09	0.03	8
1202	6.13	0.07	18
1605	8.19	0.14	34
2006	10.23	0.21	53

Pressure drop test per AMCA Standard 500-D, Figure 5.3.

Face Velocity		Pressure Drop	
fpm	(m/s)	inches w.g.	(Pa)
586	2.99	0.03	8
806	4.11	0.07	16
1206	6.15	0.15	38
1611	8.22	0.27	67
2025	10.33	0.43	106

Pressure drop test per AMCA Standard 500-D, Figure 5.3.

Face Velocity		Pressure Drop	
fpm	(m/s)	inches w.g.	(Pa)
598	3.05	0.02	5
802	4.09	0.04	9
1202	6.13	0.08	19
1594	8.13	0.14	34
2000	10.20	0.21	53

Pressure drop test per AMCA Standard 500-D, Figure 5.3.

Face Velocity		Pressure Drop	
fpm	(m/s)	inches w.g.	(Pa)
592	3.02	0.01	3
794	4.05	0.02	5
1196	6.10	0.05	11
1598	8.15	0.08	20
2006	10.23	0.12	30

Pressure drop test per AMCA Standard 500-D, Figure 5.3.

Face Velocity		Pressure Drop	
fpm	(m/s)	inches w.g.	(Pa)
601	3.07	0.02	5
804	4.10	0.04	9
1206	6.15	0.09	21
1605	8.19	0.15	38
2009	10.25	0.24	60

Pressure drop test per AMCA Standard 500-D, Figure 5.3.