

**Suggested Specifications:**

Furnish and install at location shown on drawing or in accordance with schedules dampers meeting the following specifications: Rectangular damper shall have double thick, galvanized steel (equivalent to 14 gauge) blades with galvanized steel rollformed frame. Damper to meet the low pressure drop and low leakage equal to United Energetech Model CD-160, 161.

**Standard Construction:**

**Frame:** Rollformed Galvanized Steel

**Blade:** 5"-7" [127mm - 178mm] wide galvanized steel airfoil (double skin construction of 14 ga equivalent thickness)

**Extended shaft:** 1/2" [13mm] diameter

**Bearing:** Nylon

**Linkage:** Concealed in frame

**Axles:** Zinc plated

**Blade seals:** Silicone (400°F) [202° C]

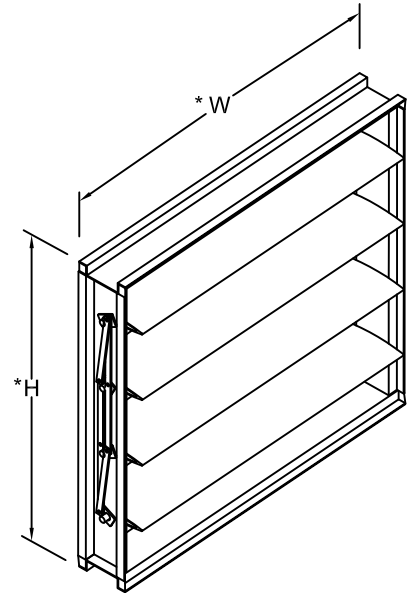
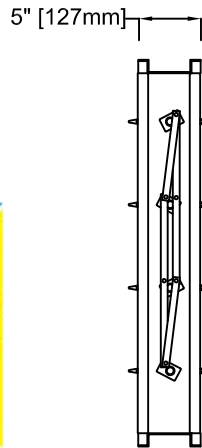
**Jamb seals:** Stainless steel (compression)

**Options:**

- Stand Off Bracket, 2" [51mm]
- Header plates (end flange)
- Hand quadrant
- Chain operated
- Factory Installed Pneumatic or Electric Actuators (see cat. sheet K-1)
- Face and By-pass damper
- Position switch
- Bronze oilite bushing
- Flange frame (one side)
- Insulated (1/2" [13mm] fiberglass)

**AVAILABLE FINISHES:**

- Epoxy Powder
- Heresite Coat



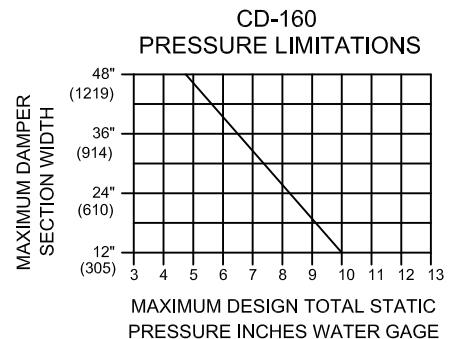
\*Undersized 1/4" [6,35mm] Standard

Minimum Size: 8"w x 6"h [203mm x 152mm]

Maximum Size: 48w x 60"h [1219mm x 1524mm] (single section)

9" [229mm]h and under - single blade

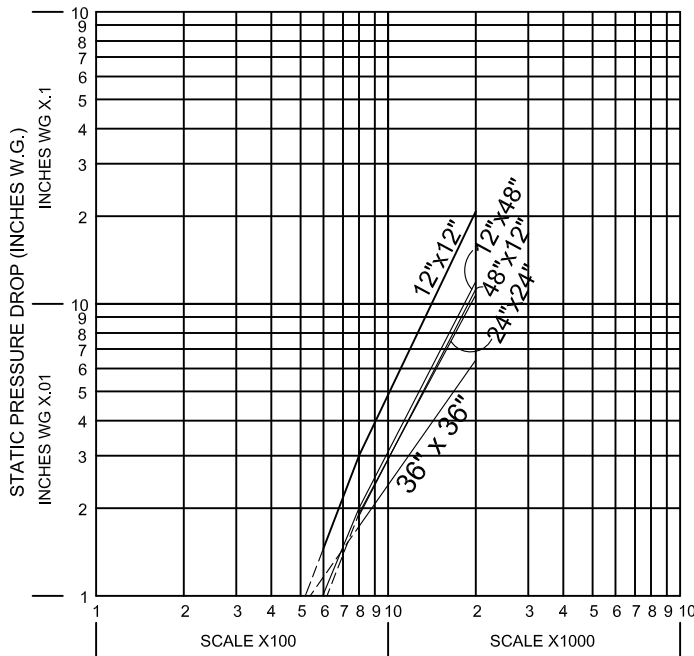
Maximum multi-section: unlimited



Job Name:	<input type="checkbox"/> <b>MODEL CD-160 (Opposed)</b>		
Location:	<input type="checkbox"/> <b>MODEL CD-161 (Parallel)</b>		
Architect:	DRAWN BY: CLJ	DATE: SEPTEMBER 2005	REV. DATE: MARCH 2014
Engineer:	REV. NO. 22	APPROVED BY: BGT	DWG. NO.: <b>A-13</b>
Contractor:			

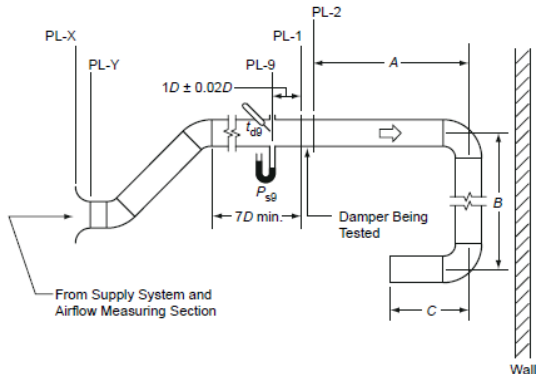
# MODEL CD-160, 161 PERFORMANCE DATA

## AIR FLOW RESISTANCE



CD-160, 161 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



United Enertech certifies that the CD-160 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.



United Enertech certifies that the CD-161 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.

### 12"x48" Pressure Drop

Face Velocity		Pressure Drop	
fpm	(m/s)	inches w.g.	(Pa)
592	3.02	0.01	2
793	4.04	0.02	5
1191	6.07	0.04	10
1591	8.11	0.08	20
2002	10.21	0.12	30

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

### 12"x12" Pressure Drop

Face Velocity		Pressure Drop	
fpm	(m/s)	inches w.g.	(Pa)
587	2.99	0.02	4
801	4.09	0.03	8
1208	6.16	0.08	21
1608	8.20	0.14	34
2023	10.32	0.22	55

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

### 24"x24" Pressure Drop

Face Velocity		Pressure Drop	
fpm	(m/s)	inches w.g.	(Pa)
599	3.05	0.009	2
796	4.06	0.02	5
1196	6.10	0.04	10
1596	8.14	0.07	18
1998	10.19	0.11	28

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

### 36"x36" Pressure Drop

Face Velocity		Pressure Drop	
fpm	(m/s)	inches w.g.	(Pa)
598	3.05	0.006	1
797	4.06	0.01	2
1195	6.09	0.02	5
1596	8.14	0.04	10
2005	10.23	0.06	16

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

### 48"x12" Pressure Drop

Face Velocity		Pressure Drop	
fpm	(m/s)	inches w.g.	(Pa)
592	3.02	0.008	2
796	4.06	0.02	4
1191	6.07	0.04	10
1592	8.12	0.07	18
2001	10.21	0.11	28

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

# MODEL CD-160 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 1	Class 1	Class 2	27.5 lbs-in
36" X 36"	Class 1A	Class 1	Class 1	10 lbs-in
48" X 36"	Class 1A	Class 1	Class 2	9 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/ft<sup>3</sup>.

## 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 1	Class 1	Class 1	27.5 lbs-in
36" X 36"	Class 1A	Class 1	Class 2	10 lbs-in
48" X 36"	Class 1A	Class 1	Class 2	9 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 1	Class 1	Class 2	33.58 N-m
915 X 915	Class 1A	Class 1	Class 1	12.15 N-m
1220 X 915	Class 1A	Class 1	Class 2	10.94 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/m<sup>3</sup>.

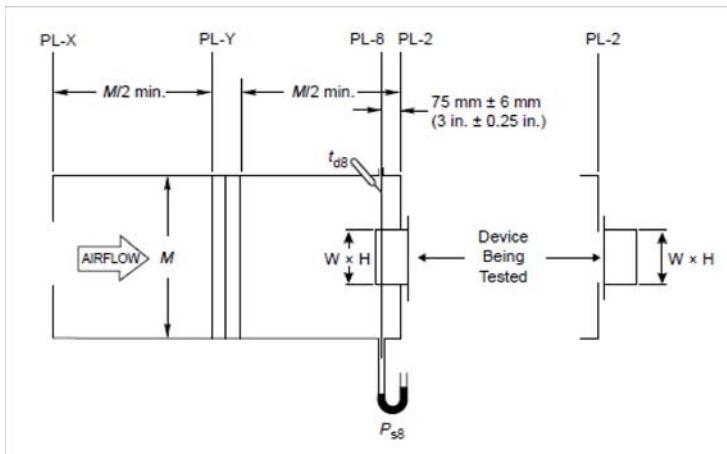
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Damper Width X Height (mm)	250 Pa Class	1 KPa Class	2 KPa Class	*Torque (per sq. m.)
305 X 1220	Class 1	Class 1	Class 1	33.58 N-m
915 X 915	Class 1A	Class 1	Class 2	12.15 N-m
1220 X 915	Class 1A	Class 1	Class 2	10.94 N-m

\*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/ft<sup>3</sup>. Tested per AMCA Standard 500-D (leakage), figure 5.4 Alternate.



		Leakage, ft <sup>3</sup> /min /ft <sup>2</sup>			
		Required Rating		Extended Ranges (optional)	
Pressure Class		1"	4"	8"	12"
		1A	3	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/ft<sup>3</sup>

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