

FIBERGLASS AIRFOIL CONTROL DAMPER

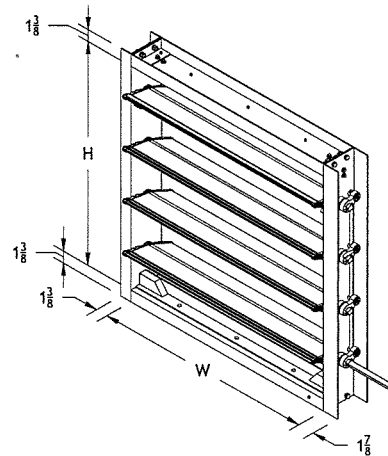
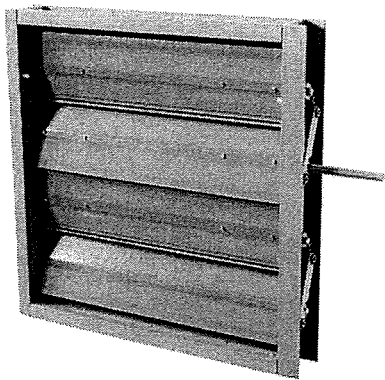
97-01-September 2008



Model K-PD

APPLICATION & FEATURES

The M.K. Plastics series K-PD series fiberglass control dampers are intended for low to medium pressure and velocity applications where corrosive elements exist in the air stream. The dampers are center pivoted and are available in both parallel and opposed blade design. An extended shaft enables both manual or motor control. Linkage is out of the air stream concealed in the frame. Maximum temperature is 200°F. The K-PD series dampers can be either flange or duct mounted. Flange drilling is available as an option.



STANDARD CONSTRUCTION

FRAME

4" or 6" x 1/8" thick vinyl ester resin C-channel.

BLADE

6-5/8" wide vinyl ester resin, airfoil shaped.

LINKAGE

Out of the air stream, concealed in frame.

AXLES

1/2" square vinyl ester resin rod. Control shaft extends 6" beyond frame.

BEARINGS

Teflon molded thermoplastic.

SEALS

Blade: Removable extruded silicone rubber.

Jamb: Compressible Viton seal caps (patent pending).

HARDWARE

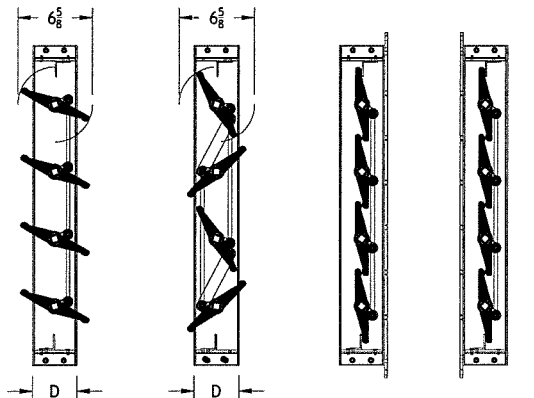
316 stainless steel.

MINIMUM SIZE

Single blade: 6"W x 8"H.

MAXIMUM SIZE

Single section: 36"W x 48"H. Larger sizes available in multiple sections.



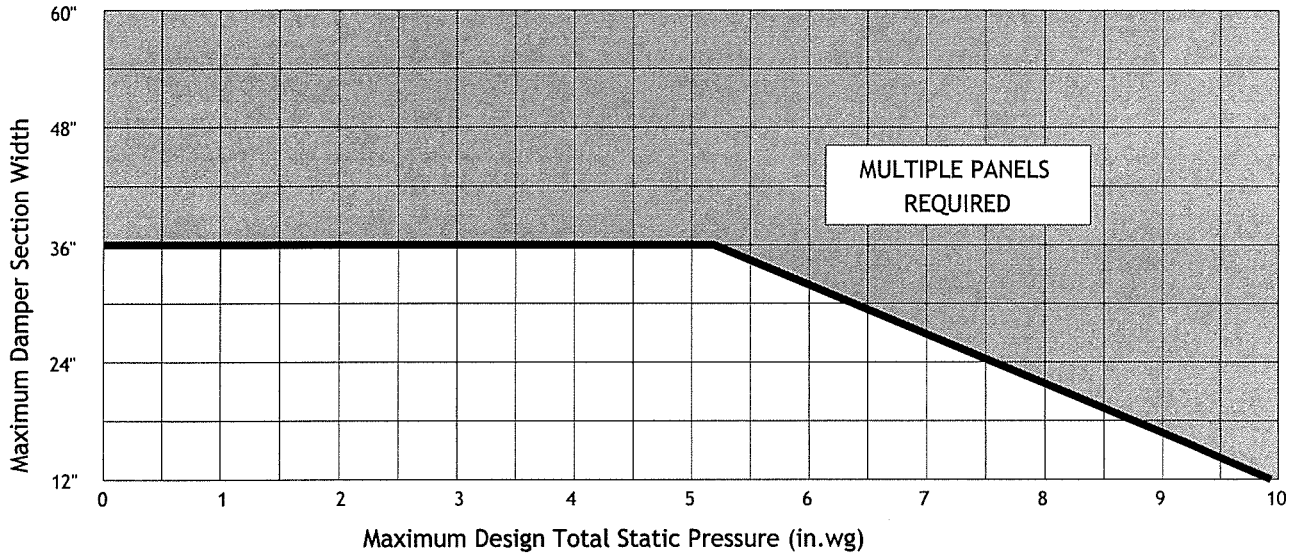
Parallel Blades Opposed Blades Front Flange Rear Flange

'D' dimension -
4" For A <= 25 1/4" and B <= 25 3/4"
6" For A > 25 1/4" or B >= 25 3/4"

QTY	W	H	BLADES		FRAME STYLE			Comments
			Parallel	Opposed	Std.	Front Flange	Rear Flange	

Project: _____ Location: _____
 Contractor: _____

BLADE DESIGN PRESSURE LIMITATIONS



NOTES—

1. Maximum differential pressure: 10" W.G.
2. Maximum face velocity: 6,000 FPM.

DAMPER OPERATIONAL TORQUE AT 1" W.G.

SIZE	12	24	36	48
12	1.9	3.8	5.7	7.6
24	3.8	7.6	11.4	15.2
36	5.7	11.4	17.1	22.8
48	7.6	15.2	22.8	30.4

Total Torque = (25 lb.in + Torque rating in table) x Pressure (in.wg)



M.K. Plastics certifies that the K-PD 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.

The following M.K. Plastics K-PD dampers were tested: 12"x12", 24"x24", 36"x36", 12"x48" and 48"x12".

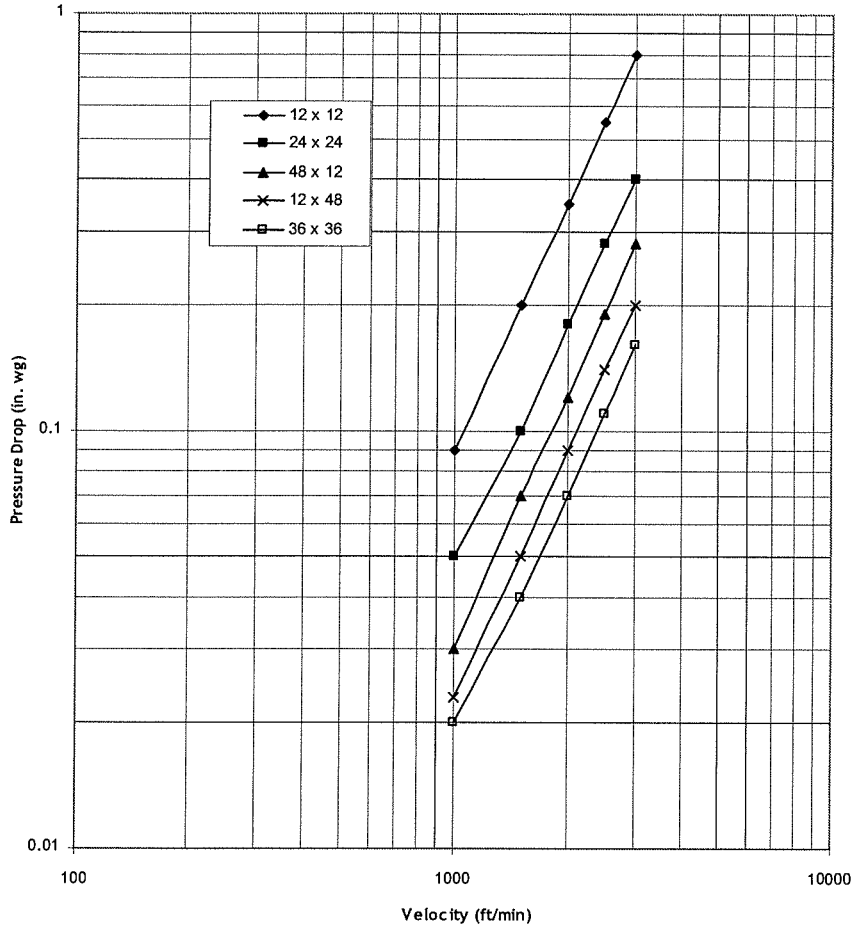
FIBERGLASS AIRFOIL CONTROL DAMPER

97-01-SEPTEMBER 2008



Model K-PD

VELOCITY VS. PRESSURE DROP



12 x 12

Velocity (ft/min)	Pressure Drop (in. wg)
268	0.01
804	0.02
1209	0.04
1615	0.07
2021	0.11

24 x 24

Velocity (ft/min)	Pressure Drop (in. wg)
402	0.01
811	0.02
1217	0.03
1629	0.05
2036	0.08

48 x 12

Velocity (ft/min)	Pressure Drop (in. wg)
590	0.02
807	0.04
1216	0.08
1628	0.15
2035	0.23

12 x 48

Velocity (ft/min)	Pressure Drop (in. wg)
590	0.01
807	0.01
1216	0.02
1628	0.03
2036	0.05

36 x 36

Velocity (ft/min)	Pressure Drop (in. wg)
299	0.00
805	0.01
1211	0.02
1616	0.03
2022	0.04

NOTES -

1. Ratings are based on AMCA Standard 500 using Test Setup Apparatus Figure 5.3 (with inlet & outlet ducts).
2. Static Pressure and Conversion Velocities are corrected to .075 lb./cu. ft. air density.



DAMPER LEAKAGE CLASS

Damper Size	Leakage Class Test Result	Leakage Class Test Result	Leakage Class Test Result
Damper Width (in) x Height (in)	1 in. wg Class	4 in. wg Class	8 in. wg Class
12 x 12	1	1	1
24 x 24	1	1	2
36 x 36	2	2	N/A
12 x 48	3	3	N/A
48 x 12	3	3	N/A

TOTAL CFM LEAKAGE AT 1" W.G. STATIC PRESSURE DIFFERENTIAL

Damper Width (inches)	Damper Height (inches)						
	12" (305)	18" (457)	24" (610)	30" (762)	36" (914)	42" (1067)	48" (1219)
12" (305)	4	17	31	45	59	73	87
24" (610)	8	11	15	23	32	41	50
36" (914)	18	28	39	49	59	70	80

LEAKAGE CORRECTION FACTOR

Damper Width (inches)	Static Pressure (Inches Water Gage)								
	1" (25)	2" (51)	3" (76)	4" (102)	5" (127)	6" (152)	7" (178)	8" (203)	9" (229)
12" (305)	1.0	1.3	1.6	1.9	2.0	2.1	2.2	2.3	2.5
24" (610)	1.0	1.4	1.7	2.1	2.4	2.6	2.9		
36" (914)	1.0	1.3	1.7	2.0	2.3				

NOTES -

1. Ratings are based on AMCA Standard 500 using Test Setup Apparatus Figure 5.4 (with outlet chamber).
2. Air leakage is based on operation between 50°F to 104°F. All data has been corrected to .075 lb./cu. ft. air density.
3. Torque applied holding damper closed at 10 in. lbs. per sq. ft. of damper with minimum of 25 in. lbs.
4. To determine leakage at static pressure differentials higher than one inch water gage, multiply leakage at one inch (middle table) by correction factor for higher static pressure (bottom table).

K-PD SUGGESTED SPECIFICATION

Furnish and install FRP control dampers, as shown on plans or as described in the schedule as per following specifications. Dampers shall comply to ASTM D4385-84A standards and frames, blades and axles should be of pultruded FRP construction. Resin used, shall be flame retardant vinyl ester. Frames shall be 4" wide up to 24" size and 6" wide on larger dampers and "C" channel type with 1/8" wall thickness. Damper blades with smooth AIR FLOW SHAPE shall be hollow, 6-5/8" wide, with minimum 1/8" walls and center reinforced area. Blade edge must have a pultruded T slot to receive a silicone rubber extrusion to provide a double air seal. Blade ends to have a VITON cap (patent pending) to seal the space between blade and frame. Dampers opposed blade shall be K-PDOB or parallel blade K-PDPB. Damper axles shall be minimum 1/2" square vinyl ester resin rods with one control rod (shaft) extending 6" outside the damper frame. Control actuation shall be either manual crank lever, hand quadrant, electric or pneumatic, as specified. Bearings shall be Teflon molded thermoplastic, design based on system pressure. Blade linkage should be in FRP parts within the "C" channel and not within the air stream. Fasteners, if provided, should be in 316 stainless steel. Damper shall be M.K. Plastics Corporation model K-PD or equivalent.