MODEL 421

Industrial Damper • 10" Deep • Single Thickness Blades • Channel Frame • Galvanized Steel • 250°F Max Temperature

For use up to 6 in. w.g. static pressure at 2500 FPM.

Standard Materials and Construction

FRAME: 2" x 10" x 2", 12 GA. galvanized steel formed channel frame, mechanically fastened together.

BLADE: 12 GA. galvanized steel, form pressed single thickness, to a maximum 48" length, welded to blade shaft. Blade width is a minimum 6¾" and a maximum of 9¾".

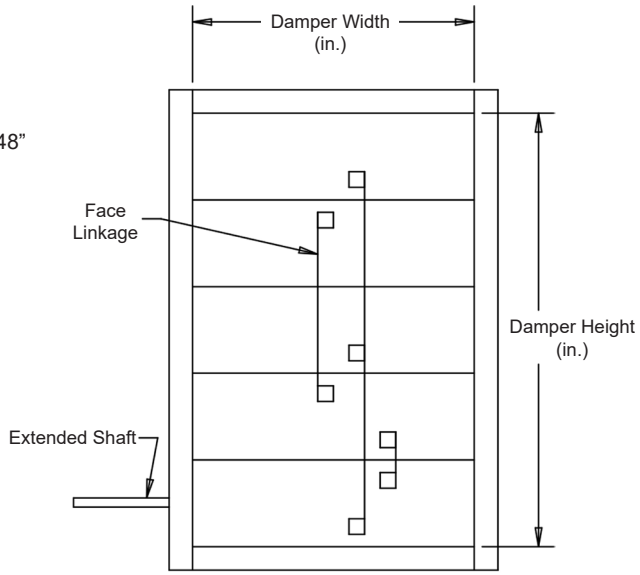
SHAFT: ½" dia. plated cold-finished steel, corrosion resistant, for up to 48" in length. Drive blade to be continuous in length.

BEARINGS: Bronze oilite flanged sleeve, pressed into the frame.

LINKAGE: ⅛" thk. chevron-type formed steel bracket. Trunnion is a plated steel machined pivot with a 5⁄16" dia. rod.

FINISH: Mill.

TEMP. LIMIT: 250°F. Consult the factory for temperature limits over 250°F.



Opposed blade operation shown.
Parallel blade operation also available.

Notes

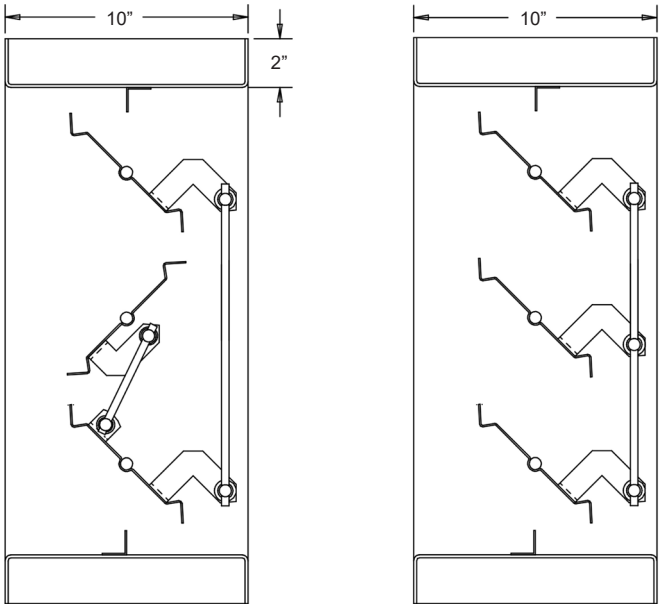
1. ¼" nominal deduction will be made to the opening size given.
2. Construction may be with other materials when required to meet special conditions, such as: temperature, pressure, velocity, system environment, or other specifications.
3. Velocities above 2500 FPM to 4000 FPM maximum shall require a double set of face linkages.
4. Approximate shipping weight is 18 lbs./sq.ft.

Options

Stuffing boxes and replaceable packing
Jamb Seals - Stainless steel
Blade Edge Seals - Neoprene
Flanges other than the standard 2" wide, up to 3½"
Finishes - Acrylic, baked enamel, etc.
Perimeter holes: one flange or two flanges
External linkage
Other types of bearings
Materials - Full stainless steel construction, extruded aluminum, galvanized steel, etc.

Damper Sizes

Min. Size	Max. Size
6"W x 6¾"H (Single Blade)	60"W x 72"H (w/ Seals)
6"W x 15"H (Opposed)	60"W x 96"H (w/o Seals)



Opposed Parallel

Not to scale.

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Air Leakage Data

Air leakage quantities shown in the chart are results of tests per AMCA Standard 500 and are shown at 1 in. w.g. differential pressure and are corrected to .075 lb./cu.ft. air density.

Air Leakage (Total CFM)

Damper Height (in.)	Damper Width (in.)						
	12"	**18"**	**24"**	**30"**	**36"**	**42"**	**48"**
12"	7	10	13	17	20	23	27
24"	13	20	27	33	40	47	54
36"	20	30	40	50	60	70	80
48"	27	40	54	67	80	94	107
60"	33	50	67	84	100	117	134
72"	40	60	80	100	121	141	161

For determining leakage values greater than 1 in. w.g. to a maximum of 6 in. w.g., use the multiplier correction chart below.

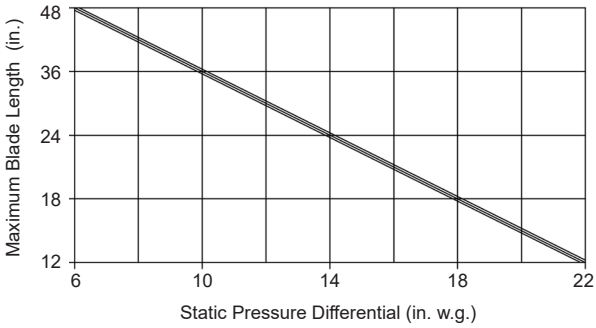
Static Pressure (in.)	2	3	4	5	6
Multiplier Correction Factor	1.4	1.7	2.1	2.5	2.8

Air leakage ratings are based on AMCA Standard 500, using test set-up Fig. 5.4 with a damper closing torque applied to the damper of 20 in. lbs./sq.ft. of damper face area for a 48" x 72", with a minimum of 40 in. lbs./sq.ft. of a damper area for a size 48" x 6¾".

Damper air leakage shown is based upon publishing only the most conservative results for the Model 421 industrial damper for an entire range of damper sizes.

To ensure proper damper operation and air leakage performance for this damper design, the static pressure and blade length limits shown below provide the necessary information and show the relationship between a damper's costs and its applications.

Damper Design Limitations



This damper's design at a blade length of 48" has a maximum allowable blade deflection of L / 360 for the static pressure indicated on the chart. At reduced blade lengths, higher static pressure limits can be attained without sacrificing damper operating performance characteristics.

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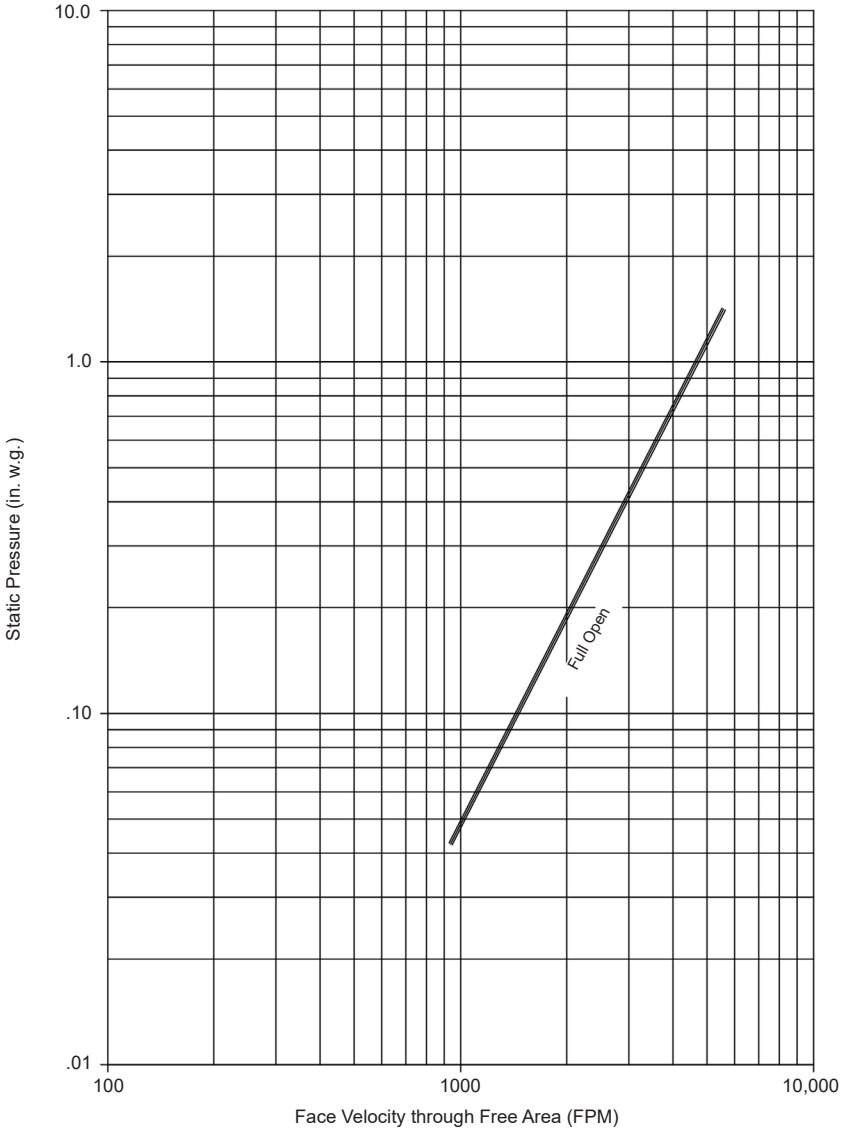
Pressure Drop Data

Pressure drop ratings are based on AMCA Standard 500, using test set-up figure 5.3 for a damper installed with duct upstream and downstream. Static pressures are corrected to .075 lb./cu.ft. air density.

Pressure Drop vs. Duct Velocity

(Opposed Blade Damper - 42"W x 42"H I.D.)



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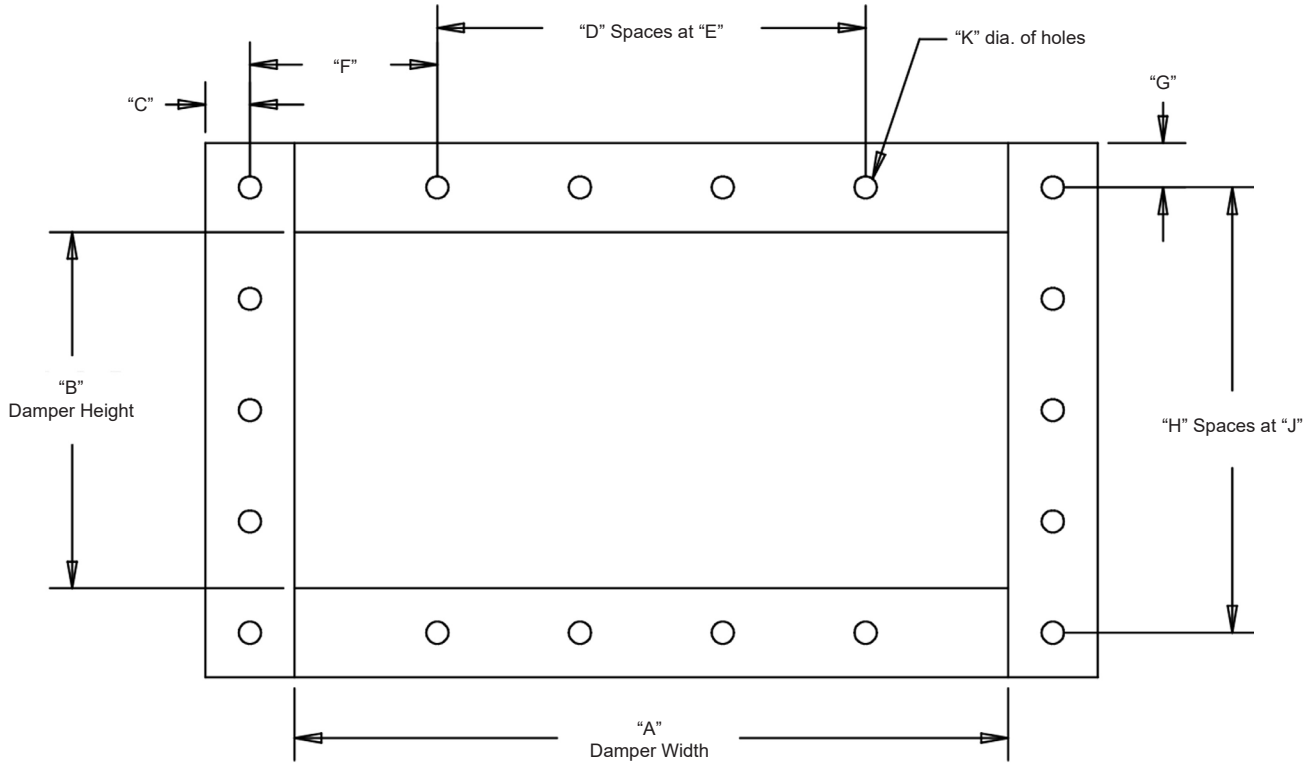

Item #	Qty	"A" Width	"B" Height	"C"	"D"	"E"	"F"	"G"	"H"	"J"	"K"	"M"	Para	Oppo	Hand Quad	Motor Lever Arm	
		Damper Size		Damper Specifcs									Blade Position		Actuator		Union Made
Arch. / Eng.:				EDR:			ECN:						Job:				
Contractor:																	
Project:				Date:			DWN:						DWG:				

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