RUSKIN®

3900 Dr. Greaves Rd. • Kansas City, MO 64030 • (816) 761-7476 • FAX (816) 765-8955

CDR92 HEAVY DUTY ROUND CONTROL DAMPER

STANDARD CONSTRUCTION

FRAME
Steel channel. See table below for web dimension and thickness.

BLADE
Steel, stiffened as required. See table below for blade thickness.

AXLE
Continuous, plated steel axle; angle reinforced as required. See table below for axle diameter.

CONTROL SHAFT
Axle extends 6" (152) beyond frame.

BEARINGS
Grease lubricated ball bearings bolted to frame.

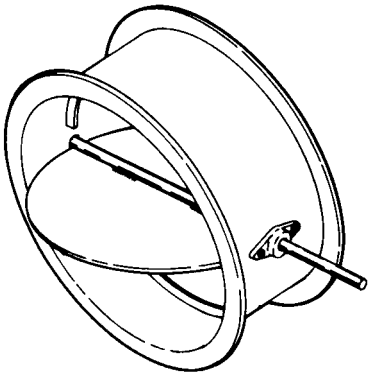
BLADE STOP
1/2" (13) x 1/4" (6) steel bar on dampers under 17" (432) in diameter.
1/2" (13) x 1/2" (13) steel bar on dampers 17" (432) in diameter and larger.

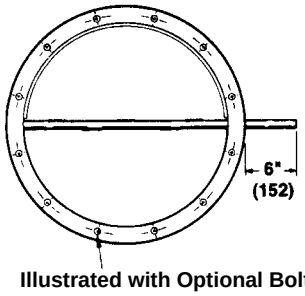
FINISH
Aluminum paint with some parts mill galvanized.

MINIMUM SIZE
4" (102) diameter.

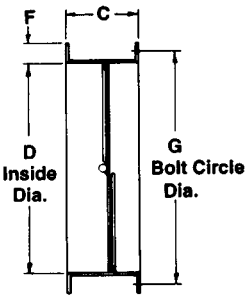
MAXIMUM SIZE
72" (1829) diameter.

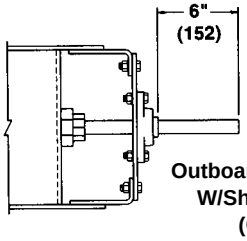
MAXIMUM TEMPERATURE
250°F (121°C) is standard. Dampers can be supplied for 250°F (121°C) to 400°F (204°C) temperature conditions by increasing clearance between blade and frame and by using a different bearing arrangement. Advise Ruskin of maximum operating temperature.





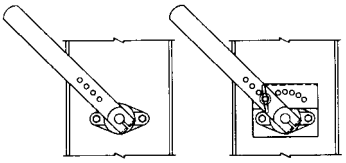
Illustrated with Optional Bolt Holes.
†H = Number of Holes (Even Number Only)
†M = Diameter of Hole
†S = Holes Straddle Axle (Illustrated)
†T = Holes Parallel with Axle ℄ (Not Illustrated)





Outboard Bearings W/Shaft Seals (OPT)

TYPICAL MANUAL ACTUATOR MOUNTING*



CL Crank Lever (OPT) **HDHQ Hand Quadrant (OPT)**

*Units with other accessories and larger sizes will have slightly different mounting.

Dimensions in parenthesis ( ) indicate millimeters.

Inside Diameter (D)		Frame		Blade Thickness	Axle Diameter
Above	Through	Flange (F)	Web (C)		
4" (102)	8 3/4" (222)	1 1/4" x 10 ga.	6" x 10 ga.	1/4" (6)	1/2" (13)
8 3/4" (222)	11 3/4" (299)	1 1/4" x 10 ga.	9" x 10 ga.	1/4" (6)	3/4" (19)
11 3/4" (299)	14" (356)	1 1/2" x 10 ga.	9" x 10 ga.	1/4" (6)	3/4" (19)
14" (356)	24" (610)	1 1/2" x 1/4"	9" x 10 ga.	1/4" (6)	3/4" (19)
24" (610)	32" (813)	2" x 1/4"	9" x 1/4"	1/4" (6)	3/4" (19)
32" (813)	44" (1118)	2" x 1/4"	9" x 1/4"	1/4" (6)	1" (25)
44" (1118)	48" (1219)	2" x 1/4"	9" x 1/4"	1/4" (6)	1 1/2" (38)
48" (1219)	52" (1321)	2 1/2" x 5/16"	9" x 1/4"	1/4" (6)	1 1/2" (38)
52" (1321)	72" (1829)	2 1/2" x 5/16"	9" x 1/4"	3/8" (10)	2" (51)

VARIATIONS

Additional variations to those listed in table are available. Contact Ruskin for pricing.
- Heavier/Higher Temperature Construction
- Special Finishes
- Special Materials

FRAME	BLADE	SEALS (Opt)	BEARINGS	AXLE	ACCESSORIES
STEEL CHANNEL – SEE CONSTRUCTION TABLE	STEEL STIFFENED AS REQUIRED – SEE TABLE	NEOPRENE 250°F (121°C) BLADE SEAL	RELUBRICABLE BALL BEARING BOLTED TO FRAME	PLATED CONTINUOUS 6" EXTENSION BEYOND FRAME	BOLT HOLES IN ONE FLANGE (OPT)
304 STN STL (OPT)	304 STN STL (OPT)	SILICONE 400°F (204°C) BLADE SEAL	RELUBRICABLE BALL BEARINGS MTD OUTBOARD OF FRAME W/SHAFT SEALS (OPT)		BOLT HOLES IN BOTH FLANGES (OPT)
		AXLE SHAFT SEAL		304SS (OPT)	MANUAL ACT. (OPT) HQ / CL
					ELECTRIC ACTUATOR (OPT)
					PNEUMATIC ACTUATOR (OPT)

QTY.	DIMENSIONS				BOLT HOLE ORIENT.		COMMENTS	TAG
	D Diameter	G Bolt Circle Diam.	H No. Holes	M Hole Diam.	S Straddle	T Parallel		

JOB **LOCATION**

CONTRACTOR

CDR92 SUGGESTED SPECIFICATION

Furnish and install, at locations shown on plans or in accordance with schedules, heavy duty industrial grade control dampers meeting the following specifications: Dampers shall be butterfly type consisting of circular blade, mounted to axle within formed flanged frame. Frames shall be constructed of steel channel and shall have full circumference blade stop located in air stream. Damper shaft shall be continuous, solid cold rolled steel extending through entire diameter of damper and beyond damper bearing a minimum of 6 inches. Axle shall be supported in sealed, relubricable ball bearings mounted to damper frame. Press fit bearings are not acceptable. Damper frame and blade shall be fabricated from hot rolled steel. All parts not otherwise protected shall be given one coat of aluminum paint. Damper leakage shall not exceed (specifier select) 35 total CFM with blade seals (or) 175 total CFM with full circumference blade stop based on 48" (1219) diameter unit at 1" W.G. Maximum pressure drop across a 48" (1219) diameter damper shall be less than .01" W.G. at 10,000 CFM. Submittal shall include published performance data on a complete range of damper sizes developed from testing in accordance with AMCA Standard 500 in an AMCA registered laboratory. Damper shall be Ruskin model CDR92.

CDR92 PERFORMANCE DATA

DAMPER LEAKAGE

Damper Width	Maximum System Pressure	Maximum System Velocity	Leakage with seals*		Leakage without seals*	
			% of max. flow	Total CFM	% of max. flow	Total CFM
72" (1829)	13.0" w.g.	6000 fpm	.035	60	.162	275
60" (1524)	13.0" w.g.	6000 fpm	.038	45	.191	225
48" (1219)	13.0" w.g.	6000 fpm	.046	35	.232	175
36" (914)	14.0" w.g.	6000 fpm	.066	28	.294	125
24" (610)	15.0" w.g.	6000 fpm	.132	25	.451	85
12" (305)	17.0" w.g.	6000 fpm	.318	15	1.060	50

*Leakage information based on pressure differential of 1" w.g.

LEAKAGE CORRECTION FACTOR

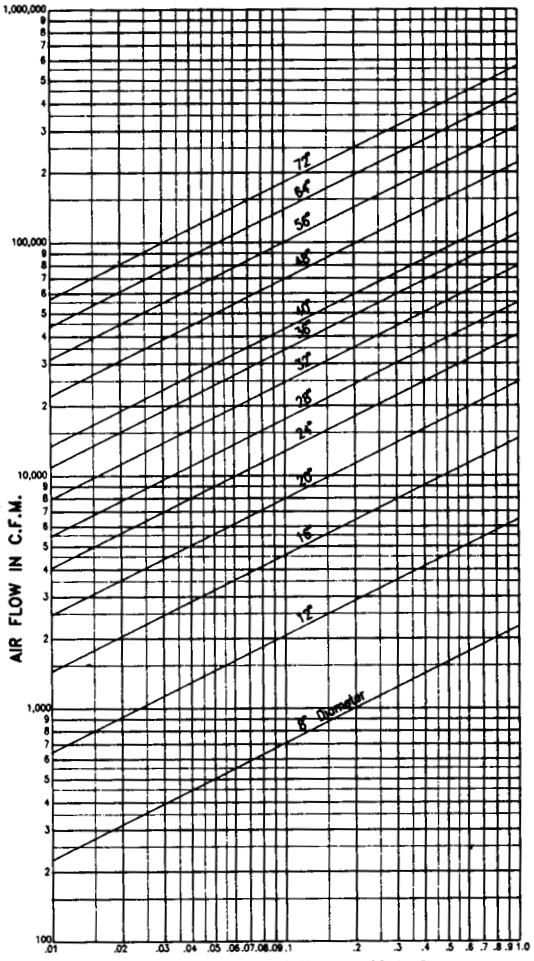
Static Pressure (in. w.g.)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Correction Factor	1.0	1.4	1.7	2.0	2.2	2.4	2.6	2.8	3	3.2	3.3	3.5	3.6	3.7	3.9	4	4.1

To determine leakage at static pressure differentials higher than one inch water gage, multiply leakage at one inch (determined from table) by correction factor for higher static pressure (determined from the Leakage Correction Factor Table).

Leakage ratings are based on AMCA Standard 500 using Test Setup Apparatus Figure 5.5. Torque applied holding damper closed at 10 in. lbs. per sq. ft. of damper with minimum of 20 in. lbs.

Dampers may tolerate higher pressures and velocities than those listed here. Conservative ratings are presented intentionally in an effort to avoid misapplication. Consult Ruskin or your Ruskin representative when damper is to be applied in conditions exceeding recommended maximums.

DAMPER PRESSURE DROP



STATIC PRESSURE IN INCHES W.G.

Performance curves based on AMCA Standard 500 using test setup apparatus figure 5.3 (damper installed with duct upstream and downstream). Static pressure and CFM are corrected to .075 lb/cu ft air density.

RUSKIN®

3900 Dr. Greaves Rd.
Kansas City, MO 64030
(816) 761-7476
FAX (816) 765-8955
www.ruskin.com