

SWARTWOUT FIBERGLASS SERIES MODEL CBDR912 FIBERGLASS ROUND BACKDRAFT DAMPER

STANDARD CONSTRUCTION

FRAME

Molded fiberglass channel with FRP blade stop.
Vinyl Ester Resin. See table below for dimensions.

BLADE

Fiberglass, Vinyl Ester Resin. Blade seals available for low leakage (Option).

AXLE

Full-length 316SS. See table below for diameters.

BEARINGS

Molded, Graphite-Filled PTFE Sleeve Bearings

COUNTERWEIGHT ASSEMBLY

316SS arm with 316SS weights; to be positioned & secured in the field to satisfy systems conditions.

SIZES (Diameters)

6", 7", 8", 9", 10", 12", 14", 16", 18", 20", 22", 24", 26", 28", 30", 32", 36", 42", 48".

MAXIMUM TEMPERATURE

200°F (93°C)

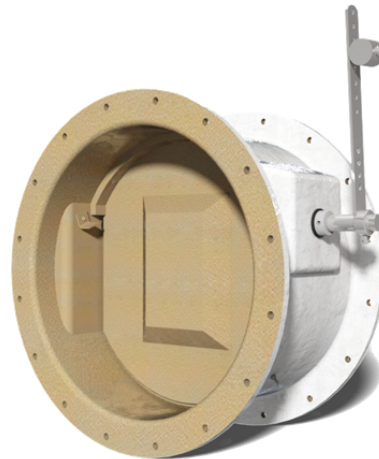
MAXIMUM SYSTEM PRESSURE

10" w.g. (7.46 kPa)

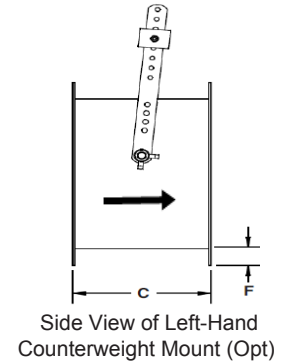
MAXIMUM SYSTEM VELOCITY

6000 fpm (30.48 m/s)

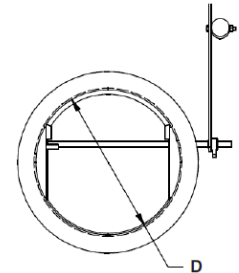
- Additional variations/options to those listed in table below are available. Consult Ruskin for details and costing.
 - Wider & thicker flanges
 - Non-standard resins
 - Static grounding
 - Exterior coatings
- Standard flange dimensions are per PS15-69; Table 2.
- Damper to be installed with the shaft aligned with the horizontal plane.
- Damper can be installed for both horizontal and vertical airflow directions.
- Airflow direction must be communicated in order to ensure proper design and pricing.



Right-Hand Counterweight Mount Showing Air Leaving Side of Damper (Standard)



Side View of Left-Hand Counterweight Mount (Opt)



Dimensions in parenthesis () are in millimeters

Inside Diameter "D"	Flange Dimensions Thickness x "F"	Web Dimensions Thickness x "C"	Blade Edge Thickness	Axle Diameter
6", 7", 8", 9" (152, 178, 203, 229)	0.25" x 2.19" (6 x 56)	0.125" (3) x "D"	0.25" (6)	0.75" (19)
10" (254)	0.375" x 2.19" (10 x 56)	0.125" x 10" (3 x 254)	0.25" (6)	0.75" (19)
12", 14" (305, 356)	0.375" x 2.19" (10 x 56)	0.125" x 12" (3 x 305)	0.25" (6)	1.00" (25)
16", 18", 20" (406, 457, 508)	0.50" x 2.19" (13 x 56)	0.125" x 12" (3 x 305)	0.25" (6)	1.00" (25)
22", 24" (559, 610)	0.50" x 2.19" (13 x 56)	0.187" x 12" (5 x 305)	0.25" (6)	1.00" (25)
26", 28", 30", 32", 36" (660, 711, 762, 813, 914)	0.50" x 2.19" (13 x 56)	0.187" x 12" (5 x 305)	0.25" (6)	1.50" (38)
42" (1067)	0.625" x 2.19" (16 x 56)	0.25" x 12" (6 x 305)	0.50" (13)	2.00" (51)
48" (1219)	0.625" x 3.19" (16 x 81)	0.25" x 12" (6 x 305)	0.50" (13)	2.00" (51)

FRAME	BLADE	BLADE SEALS (OPT)	SHAFT SEALS (OPT)	AXLE	ACCESSORIES (OPT)
MOLDED FIBERGLASS CHANNEL (SEE CONSTRUCTION TABLE) FULL CIRCUMFERENCE BLADE STOP	FIBERGLASS, STIFFENED AS REQUIRED	NEOPRENE SILICONE EPDM VITON	INTEGRAL WITH BEARING AXLE SHAFT SEAL WITH OUTBOARD BEARING	316-GRADE FULL LENGTH STAINLESS STEEL FIBERGLASS ROD; FULL LENGTH (OPT)	BOLT HOLES IN BOTH FLANGES

QTY.	FRAME				BOLT HOLE ORIENTATION		COUNTERWEIGHT MOUNT RIGHT-HAND (STD) OR LEFT-HAND (OPT)	TAG
	D-DIA.	G Bolt Circle Diam.	H No. Holes	M Hole Diam.	S Straddle	T Parallel		

JOB	LOCATION
------------	-----------------

MODEL CBDR912 SUGGESTED SPECIFICATION

Suggested specification for Model CBDR912 Ruskin Swartwout Fiberglass Series round backdraft dampers. Dampers shall be Ruskin Swartwout Series Model CBDR912.

A. Damper frames

Dampers shall be constructed with premium vinyl ester resins suitable for specified contaminants. Vinyl ester construction shall be through out, both corrosion liner and structural layers laminated using specified vinyl ester resin. Polyester, vinyl ester combinations are not acceptable. Resins used shall carry a flame spread of 25 or less. Uses of flame retardant or fillers in the corrosion liners are not acceptable. Damper frame and flange face shall have an integral corrosion barrier not less than 100 mils thick, and utilize specified resin. Additional surfacing veils should be used if required to meet or exceed corrosion resistance requirements. Corrosion liner shall be free of any inclusions, translucent and meet or exceed ASTM C 582-87. Chemical resistance shall be performed to ASTM 581-87. Tests shall be performed by independent laboratories and results available for viewing upon request.

B. Corrosion liners and Structural layers

Structural layers will be applied only after exotherm is complete from corrosion liner and shall consist of alternating layers of 1.5 oz/ft.sq. All entrapped air shall be removed in accordance with para. 6.3.4. of ASTM C 581-87. Glass to resin ratio shall be a minimum of 32-35 percent glass to a maximum of 65-67 percent resin. Structural layer of the webb and flange shall be integral, secondary or cold wrapped flanges are unacceptable. Lamination of the structural layer and flanges shall not produce excessive shrink and or exotherm causing pre-release, or warpage to the flange face, or damper I.D. Flange face to face tolerance shall be no more than 1\16 of an inch, flange flatness (when measured on a flat surface) shall have no deviation, insuring proper bolt up to mating flanges. Post applied parifinated gel coat will be standard.

C. Flanges

Flanges shall be routed to provide a concentric flange O.D. which shall not deviate by more than 0.125". Damper frame shall meet 90% barcol of resin manufacturers requirements per ASTM D 2583.

D. Damper and Blade design

Damper design shall be of single blade construction and off-set center pivoted. Blades shall utilize coring material of either balsa or synthetic type centered in blade laminate. Add on or

external stiffeners are not acceptable. Coring and lamination schedule shall be designed to hold blade deflection to a minimum of L/360 on dampers with seals and L/180 on dampers without seals.

E. Axle and Bearings

A full length axle shall be permanently fastened to the blade by using 316 grade stainless steel pins imbedded internally and not exposed to airstream contaminants, and located by means of the axle saddle integrally molded in the blade surface. Axle shall be supported on both the drive and non powered side of the damper by means of a graphite filled PTFE machined bearing. Bearing to be flanged one end eliminating blade side-to-side motion during rotation.

Bearing support area will be no less than 5\8" thick as measured on the damper centerline. Manufacturer certification of bearing material and machining will be available upon request. Axle to be continuous 316-grade stainless steel or constructed of a premium grade vinyl ester (conforming to ASTM 4385-13)

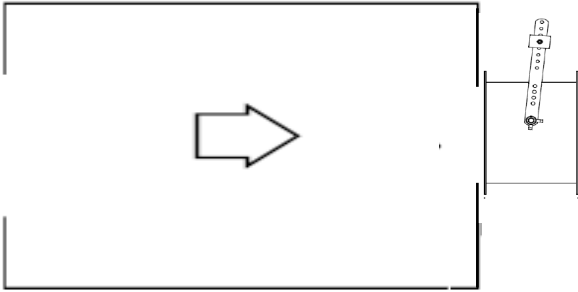
F. Blade Seals (opt)

If required, blade seal to be mechanically fastened to the blade perimeter using FRP retainer and Isoplast™ fasteners. Blade seal shall mate flush against the blade stop in the closed position.

G. Shaft Seals (opt)

If required, axle shaft seals will be of the spring loaded single lip, double lip or "O" ring type seal housed in an FRP composite retainer. The use of PVC, UHMW and other Thermoplastics are not acceptable. Seal type selection shall be based on application and material availability. Seal shall be easily maintainable and not hinder damper axle rotation. Each shaft diameter will have dedicated axle seal. Use of flat stock elastomers for axle seals are not acceptable.

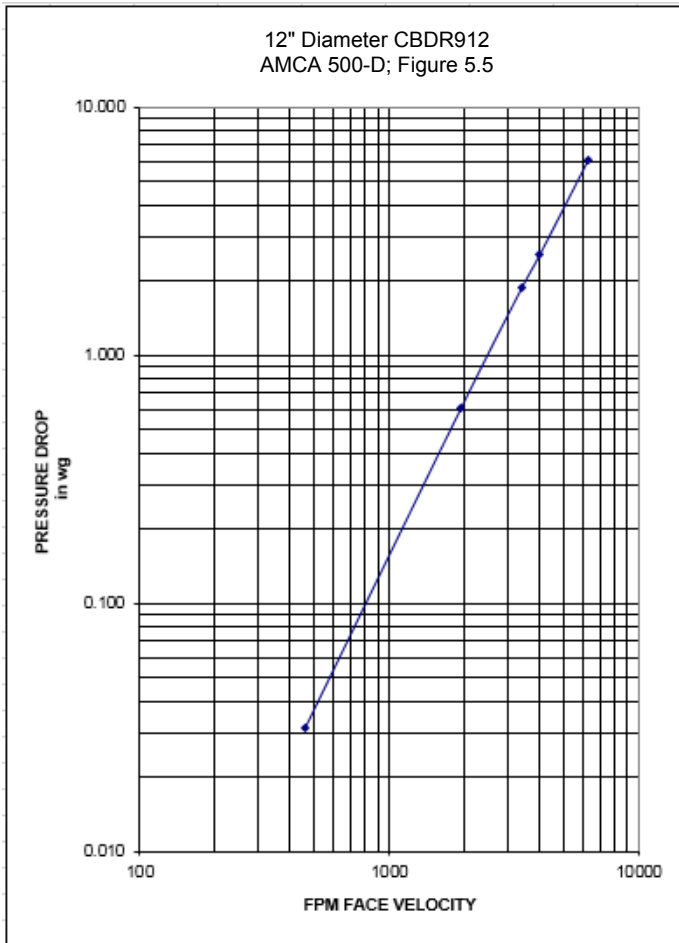
MODEL CBDR912 PERFORMANCE DATA



Inside Diameter "D"	Leakage Performance with Blade Seals (Preventing Backflow) (Total CFM @ 1" wg)
48" (1219)	65
36" (914)	52
24" (610)	46
12" (305)	28

AMCA STANDARD 500-D

FIGURE 5.5: DAMPER TEST SETUP WITH INLET CHAMBER



Dampers may tolerate higher pressure and velocities than those indicated 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.

Performance curves based on AMCA Standard 500D. Air leakage is based on operation between 50°F to 104°F (10°C to 40°C). All data corrected to represent standard air density 0.075 lbs/ft³.



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