

PDR92 ROUND PRESSURE RELIEF DAMPER (20" W.G. Maximum Design Pressure)

APPLICATION

Ruskin "pressure relief" style purge dampers are designed specifically to provide additional make-up air to incineration systems prior to fan start-up. Following system stabilization, normal counter-balance operation will continue. Offset single blade design lets Ruskin engineers calibrate the damper operation to exact customer specification.

STANDARD CONSTRUCTION

FRAME

One piece, carbon steel channel. See table below for web dimension and thickness.

BLADE

One piece, offset counter-balanced blade, stiffened as required. See table below for blade thickness.

SEAL

3/16" (5) x 1 1/2" (38) elastomeric seal.

AXLE

Full length, plated steel, reinforced as required. See table below for axle diameter.

BEARINGS

Grease lubricated ball bearings mounted outboard of frame with adjustable packing gland shaft seals.

BLADE STOP

1/2" x 1/2" (13 x 13) full circumference steel bar.

FINISH

High temperature aluminum paint.

MINIMUM SIZE

16" (406) diameter.

MAXIMUM SIZE

52" (1321) diameter. Consult Ruskin for larger sizes.

MAXIMUM TEMPERATURE

250°F (121°C) is standard. Damper 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 suitable seal. Advise Ruskin of maximum operating temperature.

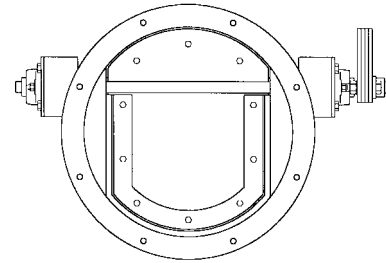
Note: Construction designs available based on specification.

Dimensions in parenthesis () indicate millimeters.

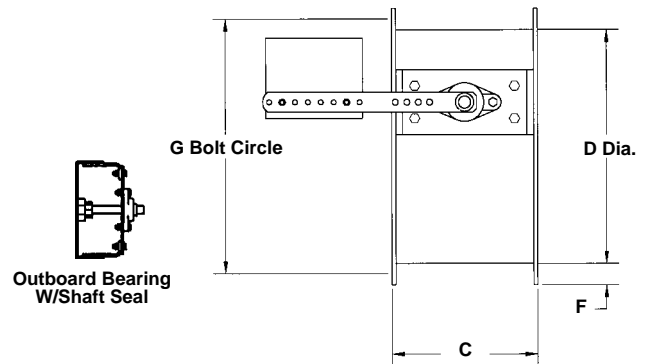
VARIATIONS

Additional variations to those listed in table are available. Contact Ruskin for pricing.

- Special finishes.
- Higher temperature construction.



Illustrated with Optional Bolt Holes.



D – INSIDE DIA.		FRAME		BLADE THICK.	AXLE DIA.
ABOVE	THRU	FLANGE (F)	WEB (C)		
16" (406)	24" (610)	1 1/2" x 1/4" (38 x 6)	9" x 10 ga. (229 x 4)	1/4" (6)	1" (25)
24" (610)	32" (813)	2" x 1/4" (51 x 6)	12" x 1/4" (305 x 6)	1/4" (6)	1" (25)
32" (813)	40" (1016)	2" x 1/4" (51 x 6)	12" x 1/4" (305 x 6)	1/4" (6)	1 1/2" (38)
40" (1016)	48" (1219)	2" x 1/4" (51 x 6)	12" x 1/4" (305 x 6)	1/4" (6)	2" (51)
48" (1219)	52" (1321)	2 1/2" x 5/16" (64 x 8)	12" x 5/16" (305 x 8)	1/4" (6)	2" (51)

FRAME		BLADE		SEALS		BEARINGS		AXLE		ACCESSORIES (OPT)	
STEEL CHANNEL – SEE CONSTRUCTION TABLE		STEEL STIFFENED AS REQUIRED – SEE TABLE		NEOPRENE BLADE SEAL (MAX. 250°F)		GREASE LUBRICATED BALL BRGS MOUNTED OUTBOARD WITH SHAFT SEALS		CONTINUOUS PLATED STEEL AXLE		BOLT HOLES IN ONE FLANGE	
304 STAINLESS STEEL (OPT)		304 STAINLESS STEEL (OPT)		SILICONE BLADE SEAL (MAX. 400°F) (OPT)				304 STAINLESS STEEL (OPT)		BOLT HOLES IN BOTH FLANGES	
				EPDM BLADE SEAL (MAX. 250°F) (OPT)						ELECTRIC ACTUATOR	
										PNEUMATIC ACTUATOR	

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								

SUGGESTED SPECIFICATION

Furnish and install, at locations shown in plans or in accordance with schedules, heavy duty industrial grade round pressure relief dampers meeting the following specifications. Dampers shall be butterfly type consisting of single blade mounted to axle within formed flange frame. Frames shall be constructed of steel channel and be a minimum of 10 gage. Damper blade shall be one piece, offset, counterbalanced construction, minimum 1/4" (6) thick and be complete with 3/16" (4.7) thick x 1 1/2" (38) elastomeric seal bolted to blade. Blades with centered axle or adhesive seals are not acceptable. Damper shaft shall be continuous, solid cold rolled steel extending through entire diameter of damper and beyond bearing to allow for installation of required external counterweights. Damper shall also be complete with actuator override mechanism for instal-

lation of either pneumatic or electric actuator. Axles shall be supported in sealed, relubricable ball bearings mounted outboard of frame. Press fit or bolt on 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. Standard damper construction shall withstand 6,000 FPM and 20" W.G. Maximum pressure drop across a 24" diameter unit shall be less than .15 at 1,000 FPM in the full open position. Damper leakage in the full closed position shall not exceed 35 total CFM based on a 48" (1219) diameter unit at 1" W.G. Submittal shall include published performance data developed from testing in accordance with AMCA Standard 500 in an AMCA registered laboratory. Damper shall be Ruskin model PDR92.

PDR92 PERFORMANCE DATA

LEAKAGE AND VELOCITY INFORMATION

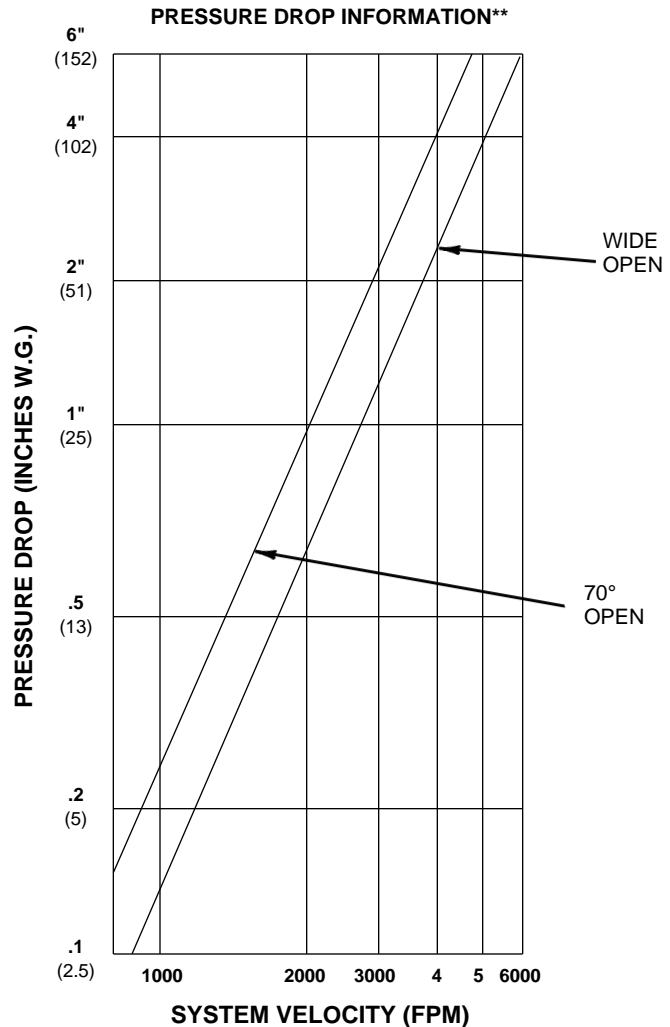
DAMPER SIZE	MAXIMUM SYSTEM VELOCITY	LEAKAGE*	
		% OF MAX. FLOW	TOTAL CFM
52" (1321)	6,000 FPM	.045	40
48" (1219)	6,000 FPM	.05	35
36" (914)	6,000 FPM	.07	28
24" (813)	6,000 FPM	.13	25
16" (406)	6,000 FPM	.24	20

*Leakage information based on pressure differential of 1" W.G. Tested per AMCA Std. 500.

Leakage Note: Leakage rate will increase as pressure approaches relief set point.

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.

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.



**Based on testing of a 24" (813) diameter damper.