

CFD(R)5 CEILING FIRE DAMPER UL Classified Ceiling Fire Dampers

APPLICATION

Underwriters Laboratories has classified hundreds of specific Floor/Ceiling (F/Cs) and Roof/Ceiling (R/Cs) and established Fire Resistance Ratings for each design ranging from 1/2 to 5 hours. The majority of designs are rated at 2 or 3 hours. Most F/Cs and R/Cs allow ceiling penetrations for HVAC on a limited and specific basis, typically one 12" diameter hole every 100 sq. ft. This hole must be protected in a very specific manner. Most ceiling diffusers (particularly diffusers designed to "lay in" exposed T-bar grid systems) cannot be used as they require an opening larger than permitted in any F/C or R/C design. Ruskin CFD(R)5 solves this problem. It permits any manufacturer's lay-in style steel ceiling diffuser (subject to gauge and dimension limitations) to be installed in UL Classified F/C or R/C assembly with Fire Resistance Ratings of 3 hours or less.

Model CFD5 meets the requirements for fire/radiation dampers established by:

- **National Fire Protection Association NFPA Standards 80, 90A, 92A, 92B, and 101.**
- **ICC International Building Codes**
- **CSFM California State Fire Marshal Listing (3225-0245:0101)**

**UL CLASSIFIED
ULC LISTED**
UL555C Listing R8039

STANDARD CONSTRUCTION

FRAME

Galvanized steel (in gauges required by UL listing R-8039).
Frame depths are as shown in following chart.

DAMPER MODEL	FRAME STYLE	B DIMENSION or D DIAMETER	FRAME DEPTH
CFD5	Standard	All sizes	3 1/8" (79)
	Extended	5" to 10" (127 to 254)	6 5/16" (160)
		11" to 14" (279 to 356)	8 1/8" (206)
15" to 24" (381 to 607)		11 1/8" (283)	
CFDR5	Standard	All sizes	3 5/8" (92)
	Extended	5" to 15" (127 to 381)	6 3/4" (171)
		over 15" to 20" (to 508)	11 3/4" (298)

BLADE

Galvanized steel (in gauges required by UL listing R-8039), with UL Classified insulation as required.

FUSIBLE LINK

165°F (74°C) is standard. 212°F (100°C) is available at no additional cost.

FINISH

Mill.

THERMAL INSULATION BLANKET

Mineral wool is standard. 1/2" (13) Refractory Ceramic Fiber (RCF) is available at additional cost.

MINIMUM SIZE (Inside Dimension)

Diffuser neck – 4"w x 5"h (102 x 127) or 5" (127) diameter.

MAXIMUM SIZE (Inside Dimension)

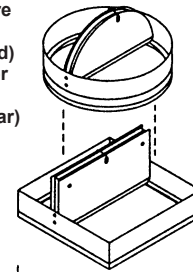
Ceiling opening – 24" x 24" (610 x 610).
Diffuser neck – 20" (508) diameter or 18" x 18" (457 x 457).

DIFFUSER PAN LIMITATION

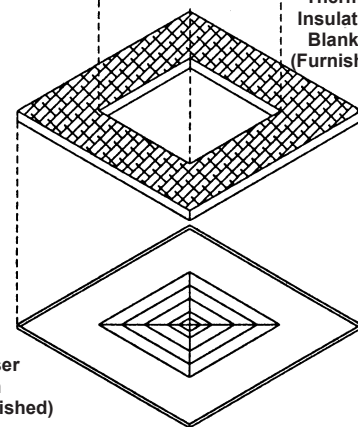
24 gauge (.6) steel minimum.

Dimensions shown in parentheses () indicate millimeters.

Ceiling fire
Damper
(Furnished)
(Round or
Square/
Rectangular)



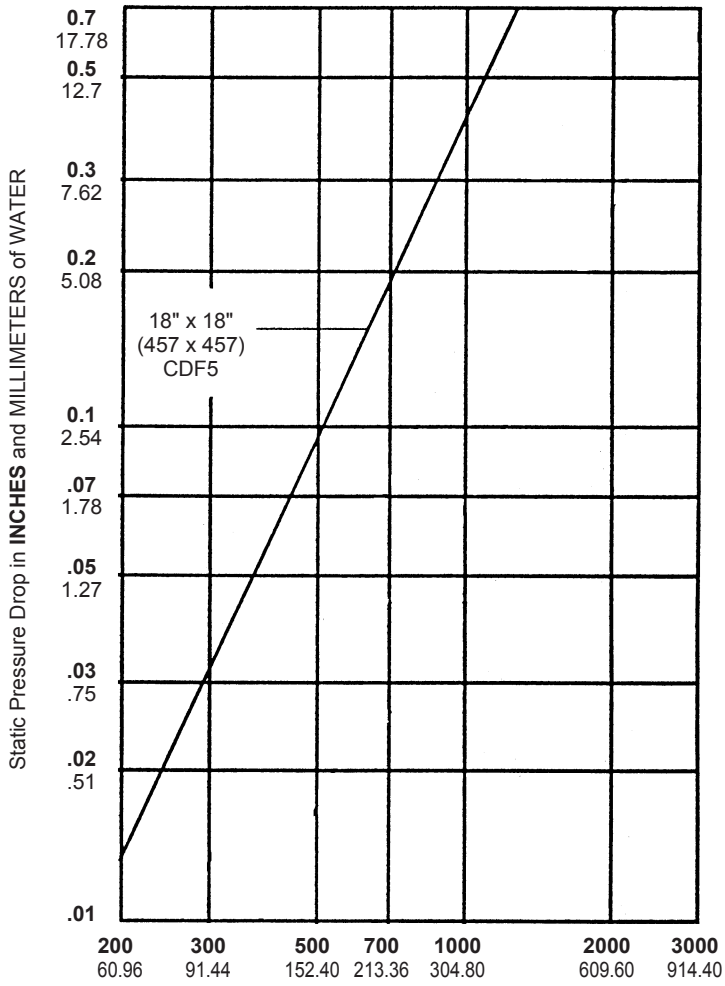
Thermal
Insulating
Blanket
(Furnished)



Diffuser
Pan
(Not Furnished)

PERFORMANCE DATA

Pressure Drop – Damper Open (Size as noted)



Air Velocity in **FEET** and **METERS** per minute through **FACE AREA**.
Tested per AMCA Std. 500, Fig. 5.2, ductwork upstream.

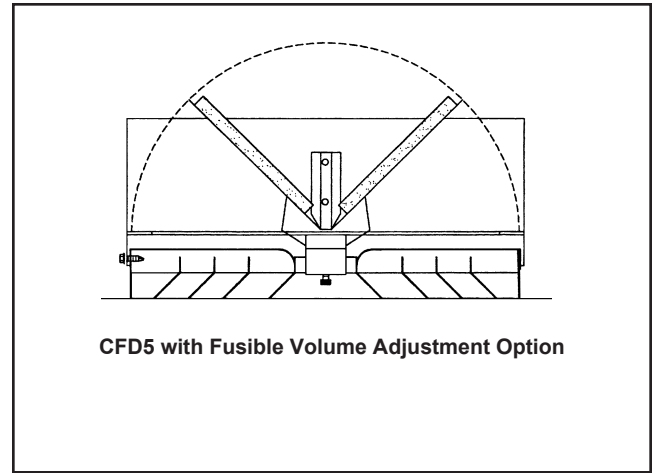
VOLUME CONTROL

While it is possible to use separate opposed blade balancing dampers with the CFD5, the fusible volume adjustment option converts the ceiling fire damper to a manually adjustable volume control damper. This permits air balance to be accomplished at each ceiling diffuser without need for a separate balancing damper. (In keeping with good design practice, primary balancing of diffuser air should be accomplished at the point where diffuser duct connector taps into supply air duct.)

Fire conditions cause damper blades to close regardless of volume setting. This feature must be incorporated by the factory at time of damper fabrication. It cannot be added in the field. Standard $\frac{3}{16}$ " hexagonal (Allen) wrench is required for adjustment.

Note: 165°F (74°C) supplied as standard. Specify 212°F (100°C) if required.

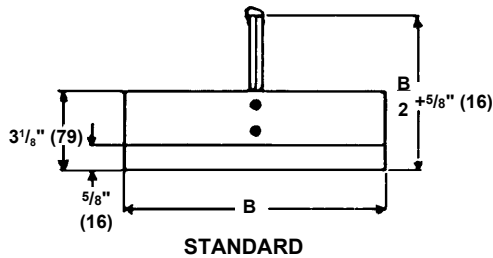
Caution: Volume Adjust hangs below a rectangular damper $1\frac{1}{8}$ " (29). Volume Adjust hangs below a round damper $\frac{3}{8}$ " (10).



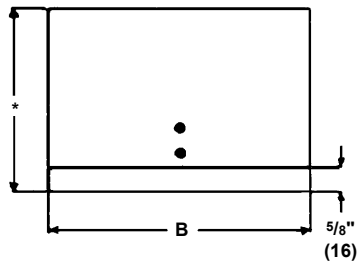
CFD5 with Fusible Volume Adjustment Option

STANDARD AND EXTENDED FRAMES

Rectangular
Model CFD5



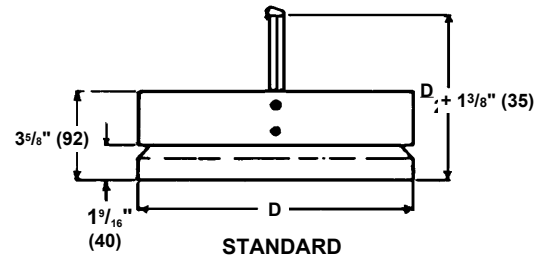
STANDARD



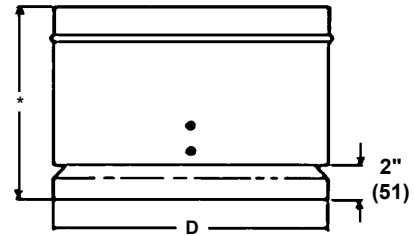
*EXTENDED

B DIMENSION	*FRAME DEPTH
5" to 10" (127 to 254)	$6\frac{5}{16}$ " (160)
11" to 14" (279 to 356)	$8\frac{7}{8}$ " (206)
over 14" to 24" (to 610)	$11\frac{1}{8}$ " (283)

Round
Model CFDR5



STANDARD



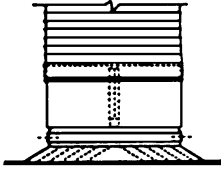
*EXTENDED

B DIMENSION	*FRAME DEPTH
5" to 15" (127 to 381)	$6\frac{3}{4}$ " (171)
over 15" to 24" (to 610)	$11\frac{3}{4}$ " (298)

NOTE: Dimensions shown in parentheses () indicate millimeters.

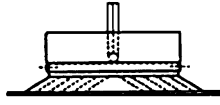
ORDERING INFORMATION

FLEX DUCT INSTALLATIONS



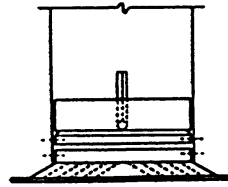
Order "actual size" with **extended** frame. Damper installs over diffuser neck. Flex Duct installs over damper.

DUCTLESS INSTALLATIONS



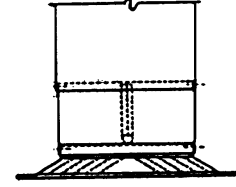
Order "actual size" with **standard** frame. Damper in stalls over diffuser neck.

STEEL DUCT DROP INSTALLATIONS



Order "deduct 1/4 inch" with **standard** frame. Damper installs inside duct. Duct connects to diffuser neck.

OR



Order actual size with **extended** frame. Damper installs over diffuser neck. Duct connects to damper.

NOTE: Damper sizes are Inside Dimension.

SUGGESTED SPECIFICATION

All ceiling register and grille openings in fire rated ceilings shall be protected by appropriate UL Fire Resistance Classified ceiling fire dampers. Fire dampers with 1 1/2 or 3 hour ratings for walls or floors are not to be used in fire rated ceiling openings. The UL Fire Resistance Classification(s) shall apply to the specific ceiling system design and diffusers, grille or register construction being installed. All installations shall be in accordance with manufacturer's published installation instructions.

Lay in ceiling diffusers shall be a minimum of 24 gauge steel construction. Ceiling radiation damper assembly shall consist of a ceiling fire damper protecting the diffuser neck and a thermal insulating blanket protecting the diffuser pan. The entire system shall be UL Classified for use in all UL fire rated floor/ceiling and roof/ceiling systems with fire resistance ratings of three hours or less. System proposed for installation must be equivalent in all respects to Ruskin model CFD(R)5.

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