

Tag: Engineer:
 Project: Contractor:
 Location: Architect:
 Date: Submitted by:



Model SCD-57

Steel Control Damper with 3V Blades

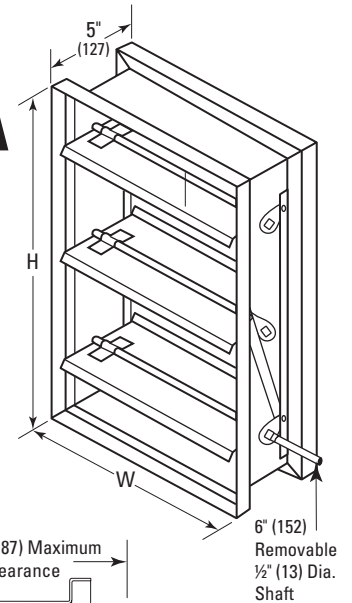
Application:

The SCD-57 is a general purpose commercial control damper for use in an automatic or manual balancing control applications where tight sealing is not of primary importance. The SCD-57 is intended for low to medium pressure and velocity applications and can be provided in opposed or parallel blade orientations. When low leakage damper requirements are needed see Model SCD-LL-57.

The SCD-57 is the perfect solution for an economical and ruggedly built control damper with countless options for automatic control. The SCD-57 utilizes a low profile head and sill frame to maximize free area on sizes 17" (432) and less in height. The SCD-57 utilizes varying blade widths (see side cut section) so please ensure clearance is attained before installing.



Width and Height provided ¼" (6) under ordered dimensions.



Standard Construction:

FRAME: Roll-formed 20 ga. galvanized steel hat-section with staked corners with integral bracing.

BLADES: 16 ga. triple-vee (3V) profile Roll-formed, galvanized steel
 Minimum width: 4.250" (108)
 Maximum width: 7.250" (184)

BEARINGS: Nylon. Press-fit into frame.

AXLES: Square, plated steel.

LINKAGE: Concealed in frame. Linkage bars are 12 ga. thick galvanized steel.

FINISH: Mill galvanized.

EXTENDED SHAFT: Removable, 6" long x 1/2" dia. (152 x 13) plated steel coupled to square axle. Dampers 32" (813) and wider will be supplied with a jackshaft extending 6" (152) past frame.

MAX. TEMPERATURE: 250°F (121°C)

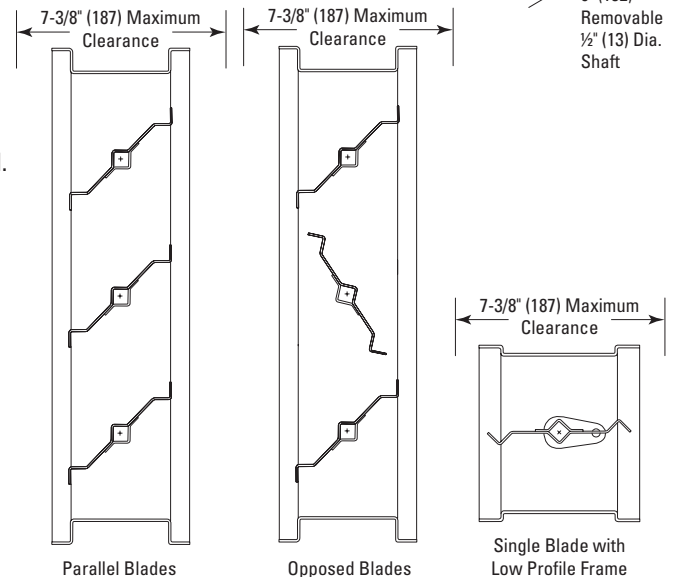
MINIMUM SIZE: 5" x 5" (127 x 127)

MAXIMUM SIZE:

Single Section: 48" x 72" (1219 x 1829)

Multiple Section: Unlimited

All dimensions shown in inches, parentheses () indicate millimeters.



*Low Profile frame provided on dampers under 18" in height.

Optional Construction:

Blade and jamb seals (See Model SCD-LL-57)

Standoffs:

2" (51)

1" (25)

Flange:

Single Flange

Double Flange

Add jackshaft

Operators:

Actuators: Pnuematic or Electric: 24V 120V

Manual Quadrant Pull Chain

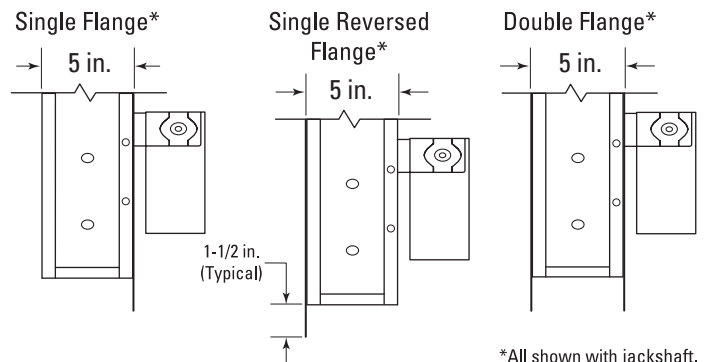
Epoxy Coating Finish

Blade Action:

Parallel Opposed

Face and Bypass (See Face Bypass Mixing Damper Supplemental Submittal)

Bronze Oilite Bearings



*All shown with jackshaft.

PRESSURE DROP

Pressure drop testing was conducted by an independent laboratory in accordance with the AMCA Standard 500-D, Fig. 5.3 ductwork upstream & downstream.

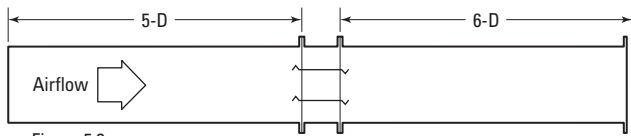
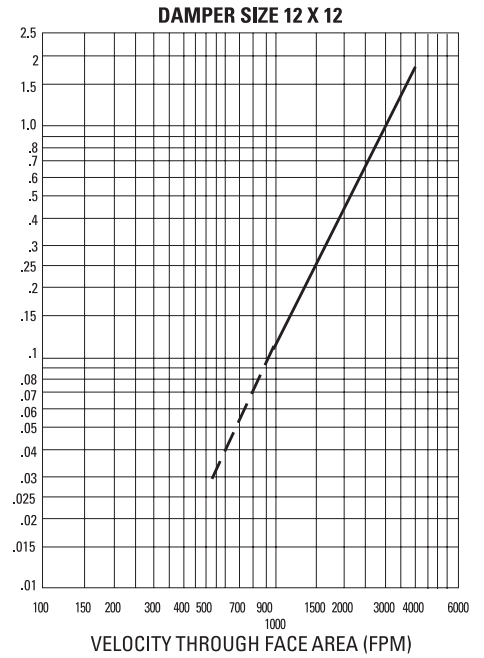
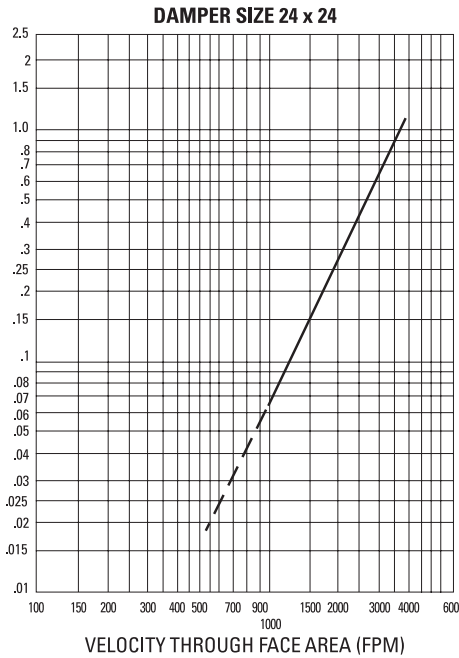
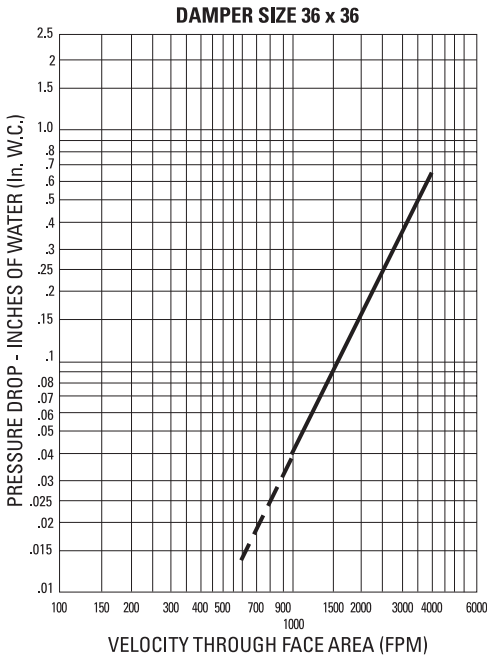
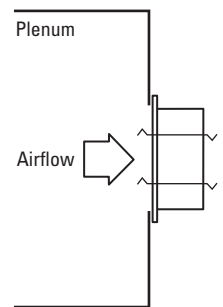


Fig. 5.3:

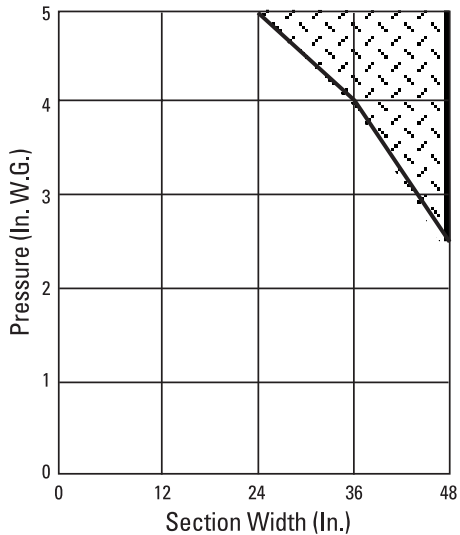
Illustrates a fully ducted damper. This configuration has the lowest pressure drop of the three test configurations because entrance and exit losses are minimized by straight duct runs upstream and downstream of the damper.

Fig. 5.5:

Illustrates a plenum mounted damper. This configuration has the highest pressure drop because of extremely high entrance and exit losses due to the sudden changes of area in the system.



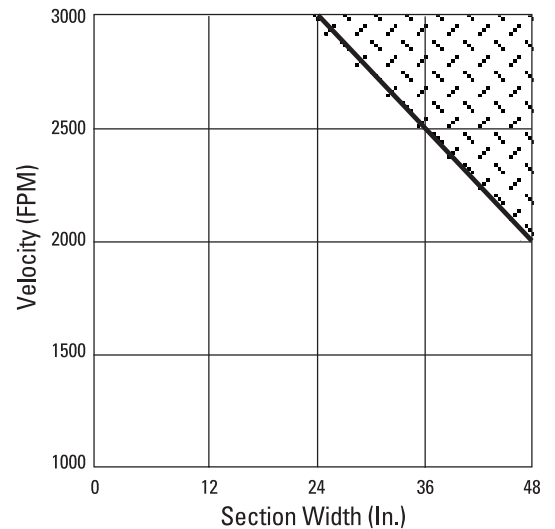
PRESSURE LIMITATIONS



Pressure & Velocity Limitations presented in the adjoining graphs are conservative in order to avoid mis-applications.

Please contact factory for application guidance if your requirements exceed published limitations.

VELOCITY LIMITATIONS





SCD-57 Notes:

- All dampers are fabricated 1/4" (6) under listed size unless specified "exact or actual"
- The SCD-57 must be installed so that blades run horizontally. It is NOT recommended for blades to run vertically.
- Always connect motors to power blade and on linkage side (if applicable).
- NCA dampers are designed to be self supporting only in largest single section size. Larger size may require external bracing. Recommended bracing minimum of 8' (2438). The amount and size will depend on unit size and system pressure.
- All dampers 32" (813) and over are supplied with Jackshafting.

Applicable NCA Literature:

Basic Control Damper Installation, Operation and Maintenance (IOM).

Tag: _____ Engineer: _____
 Project: _____ Contractor: _____
 Location: _____ Architect: _____
 Date: _____ Submitted by: _____



Low Leakage Steel Control Damper with Airfoil Blades

Application:

The SCD-AF is an ultra low leakage commercial control damper with airfoil blades. The SCD-AF is most commonly used in automatic control applications where tight sealing and low pressure drop is of primary importance. The SCD-AF's blades are in an airfoil shape in order to greatly reduce the pressure drop and turbulence caused by higher velocities within a duct. The SCD-AF can be provided in opposed or parallel blade orientations.

The SCD-AF is the perfect solution for a ruggedly built control damper with low leakage and low pressure drop characteristics. The SCD-AF utilizes a low profile head and sill frame to maximize free area on sizes 17" (432) and less in height. The SCD-AF utilizes varying blade widths (see side cut section) so please ensure clearance is attained before installing.

Standard Construction:

FRAME: Roll-formed 20 ga. galvanized steel hat-section with staked corners with integral bracing.

BLADES: Airfoil-shaped, double skin galvanized steel of roll-formed construction. Mechanically joined to form construction equivalent to 14 ga. steel. Minimum 5"w (127), Maximum 7"w (178)

BEARINGS: Nylon. Press-fit into frame.

AXLES: Square, plated steel.

SEALS: 450°F silicone blade edge seals and flexible stainless steel jamb seals.

LINKAGE: Concealed in frame. Linkage bars are .125 (6) thick plated steel.

FINISH: Mill galvanized.

EXTENDED SHAFT: Removable, 6" long x 1/2" dia. (152 x 13) plated steel coupled to square axle. Dampers 32" (813) and wider will be supplied with a jackshaft extending 6" (152) past frame.

MAXIMUM TEMPERATURE: 250°

MINIMUM SIZE: 8"w x 8"h (203 x 203).

MAXIMUM SIZE:

Single Section - 48"w x 72"h (1219 x 1829).

Multiple Section - Unlimited size.

All dimensions shown in inches, parentheses () indicate millimeters.

Optional Construction:

Standoffs:

2" (51)

1" (25)

Flange:

Single Flange

Double Flange

Bearings:

Bronze Oilite

Operators:

Actuators: Pneumatic or Electric: 24V 120V

Manual Quadrant

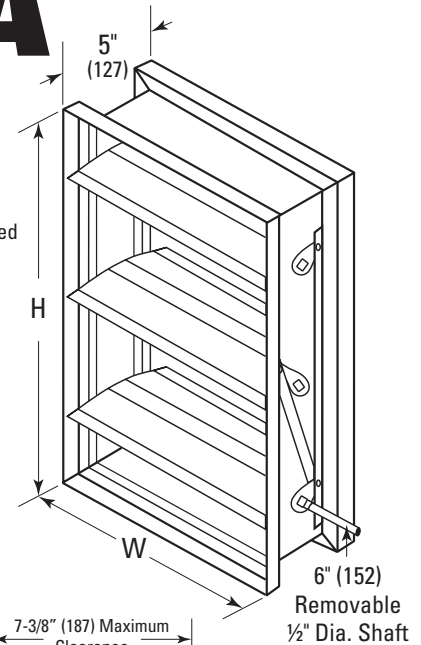
Pull Chain

Blade Action:

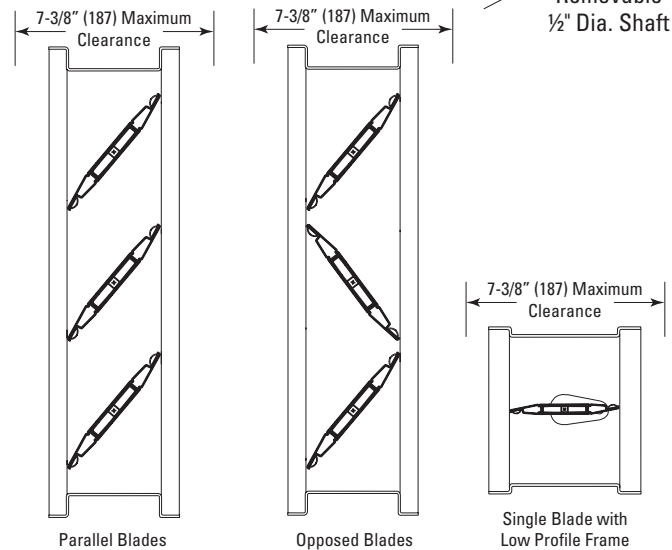
Parallel Opposed

Face and Bypass (see Face Bypass Mixing Damper Supplemental Submittal)

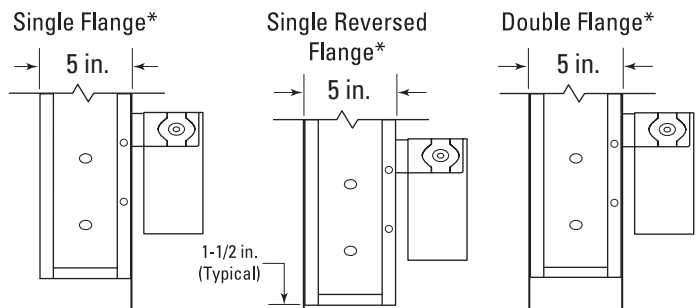
Add Jackshaft



Width and Height provided 1/4" (6) under ordered dimensions.



*Low Profile frame provided on dampers under 18" in height.



*All shown with jackshaft.

PRESSURE DROP

Pressure drop testing was conducted by an independent laboratory in accordance with the AMCA Standard 500-D, Fig. 5.3 ductwork upstream & downstream.

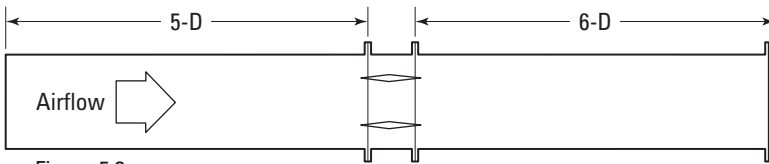
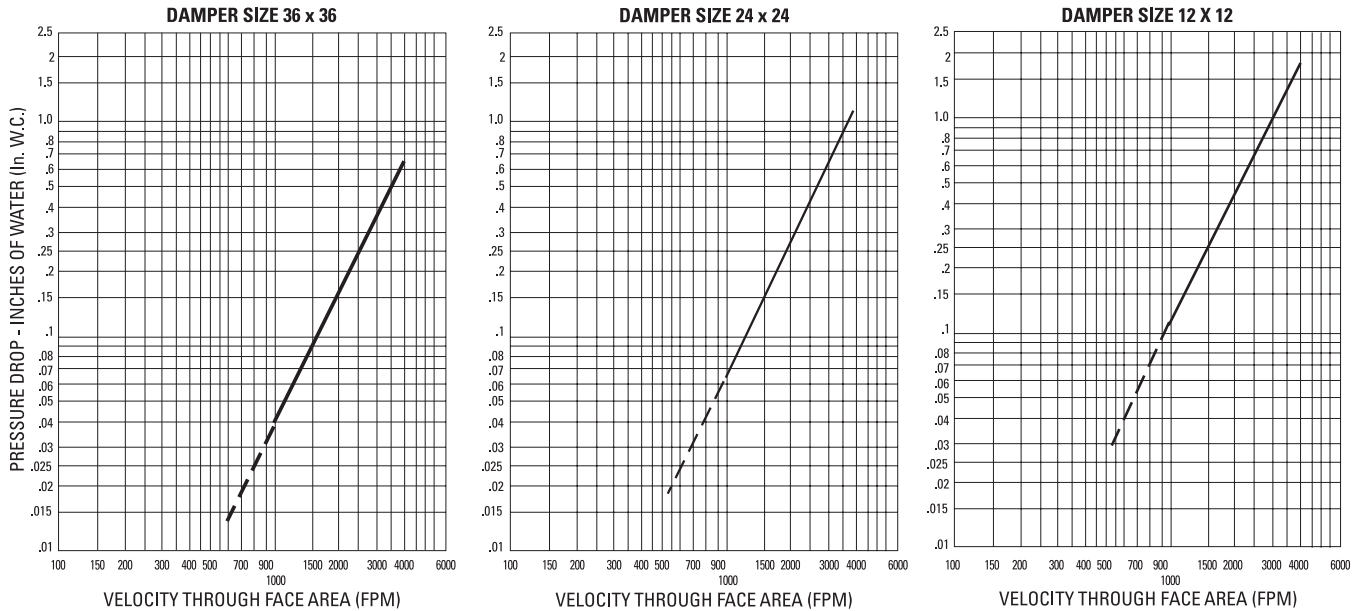
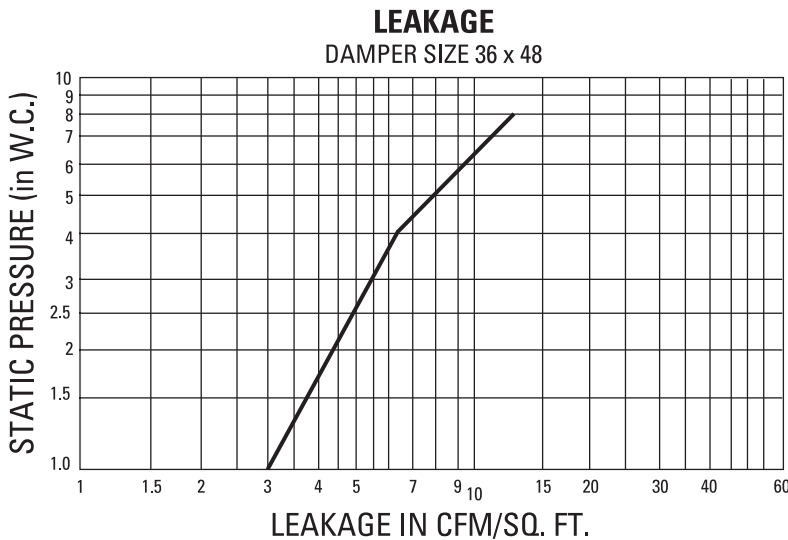


Figure 5.3

Fig. 5.3:

Illustrates a fully ducted damper. This configuration has the lowest pressure drop of the three test configurations because entrance and exit losses are minimized by straight duct runs upstream and downstream of the damper.



LEAKAGE at 1" W.G. = 3 cfm/sq.ft. (Equivalent to AMCA Class 1A)
LEAKAGE at 2.5" W.G. = 5 cfm/sq.ft.
LEAKAGE at 4" W.G. = 6.3 cfm/sq.ft. (Equivalent to AMCA Class 1)

Note:

Leakage Performance test was conducted by an independent laboratory in accordance with AMCA Standard 500-D Figure 5.5 and is expressed as CFM/SQ. FT. of damper face area.

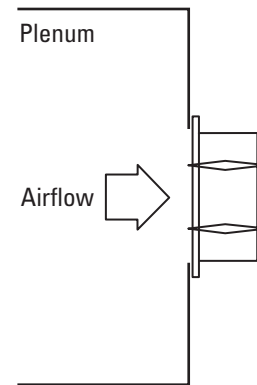
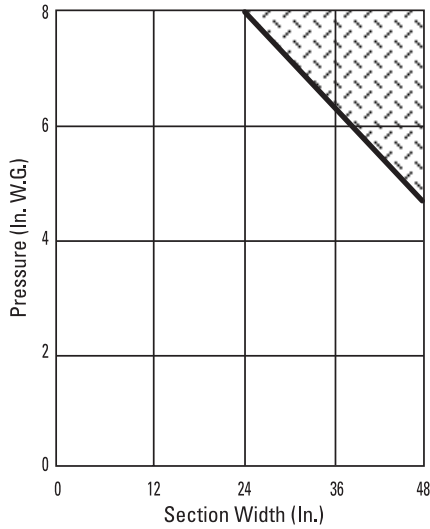


Figure 5.5

Fig. 5.5:

Illustrates a plenum mounted damper. This configuration has the highest pressure drop because of extremely high entrance and exit losses due to the sudden changes of area in the system.

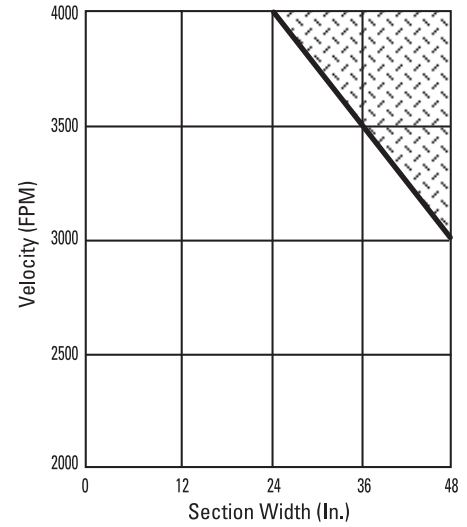
PRESSURE LIMITATIONS



Pressure & Velocity Limitations presented in the adjoining graphs are conservative in order to avoid mis-applications.

Please contact factory for application guidance if your requirements exceed published limitations.

VELOCITY LIMITATIONS



SCD-AF Notes:

- All dampers are fabricated 1/4" (6) under listed size unless specified "exact or actual"
- The SCD-AF must be installed so that blades run horizontally. It is NOT recommended for blades to run vertically.
- Always connect motors to power blade and on linkage side (if applicable).
- NCA dampers are designed to be self supporting only in largest single section size. Larger size may require external bracing. Recommended bracing minimum of 8' (2438). The amount and size will depend on unit size and system pressure.
- All dampers 32" (813) and over are supplied with Jackshafting.

Applicable NCA Literature:

Basic Control Damper Installation, Operation and Maintenance (IOM).

Tag: _____ Engineer: _____
 Project: _____ Contractor: _____
 Location: _____ Architect: _____
 Date: _____ Submitted by: _____



Model SCD-IB

Low Leakage Steel Control Damper
 with Insulated Aluminum Airfoil Blades



Application:

The SCD-IB is a low leakage control damper with a steel frame and insulated aluminum airfoil blades. The SCD-IB is primarily used for automatic control applications where tight sealing, low pressure drop and temperature loss/gain are all important factors.

The SCD-IB uses polystyrene insulated extruded aluminum airfoil shaped blades for temperature separation while maintaining minimal pressure drop. The insulated blades are intended to minimize energy loss due to temperature transferring through the closed damper blades. The rugged galvanized steel frame allows for a balance of performance and economic value.

Standard Construction:

FRAME: Roll-formed 20 ga. galvanized steel hat-section with staked corners with integral bracing.

BLADES: Extruded 6063-T6 aluminum 6" (152) wide, double wall 0.050" (1.3) hollow airfoil profile with reinforced center.

BEARINGS: Nylon. Press-fit into frame.

AXLES: Square, plated steel.

SEALS: 250°F inflatable silicone blade edge seals and flexible stainless steel jamb seals.

LINKAGE: Concealed in frame. Linkage bars are .125 (6) thick plated steel.

FINISH: Mill galvanized frame, mill aluminum blades.

EXTENDED SHAFT: Removable, 6" long x 1/2" dia. (152 x 13) plated steel coupled to square axle. Dampers 32" (813) and wider will be supplied with a jackshaft extending 6" (152) past frame.

MAXIMUM TEMPERATURE: 250°

MINIMUM SIZE: 8"w x 8"h (203 x 203).

MAXIMUM SIZE:

Single Section - 60"w x 72"h (1524 x 1829).

Multiple Section - Unlimited size.

All dimensions shown in inches, parentheses () indicate millimeters.

Optional Construction:

Standoffs:

2" (51)

1" (25)

Flange:

Single Flange

Double Flange

Bearings:

Bronze Oilite

Operators:

Actuators: Pnuematic or Electric: 24V 120V

Manual Quadrant

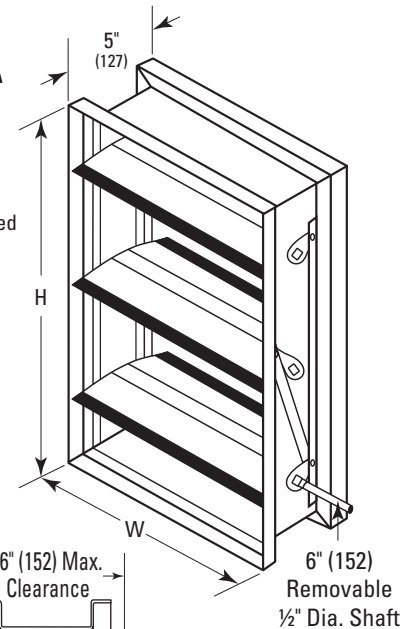
Pull Chain

Blade Action:

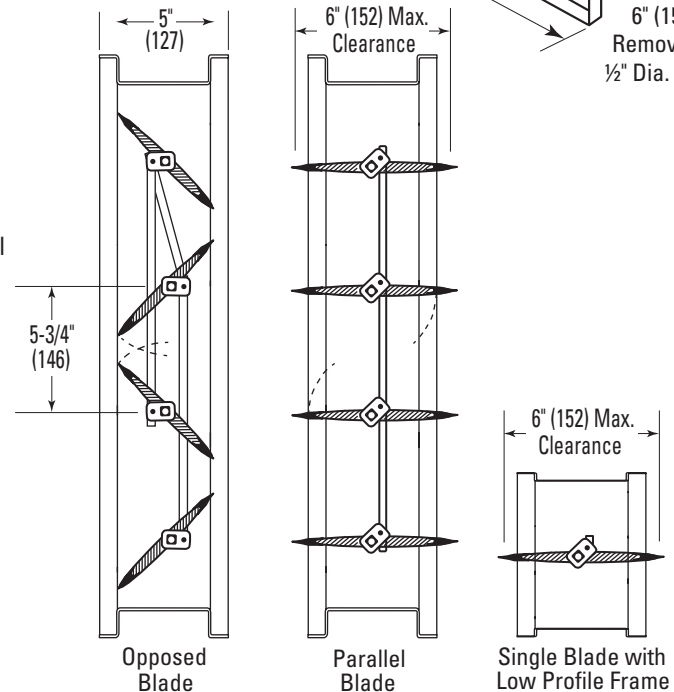
Parallel Opposed

Face and Bypass (see Face Bypass Mixing Damper Supplemental Submittal)

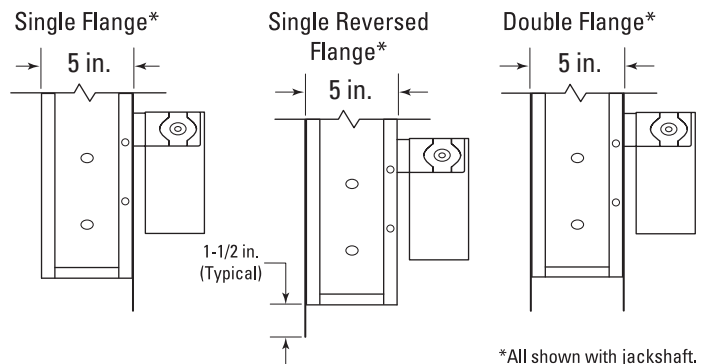
Add Jackshaft



Width and Height provided
 1/4" (6) under ordered
 dimensions.

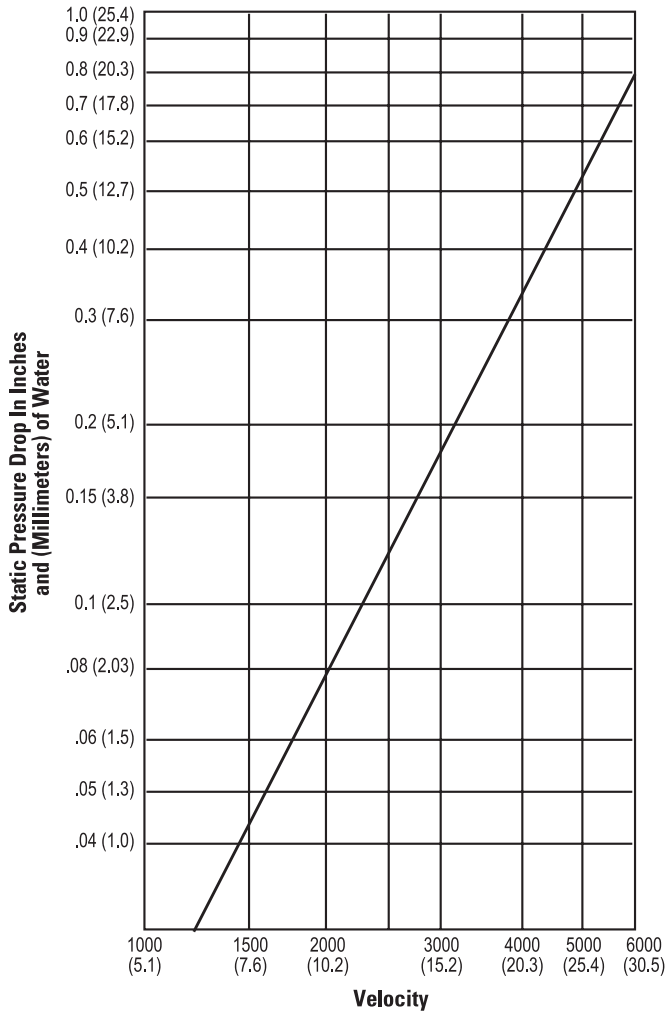


Low Profile frame provided on dampers under 18" in height.



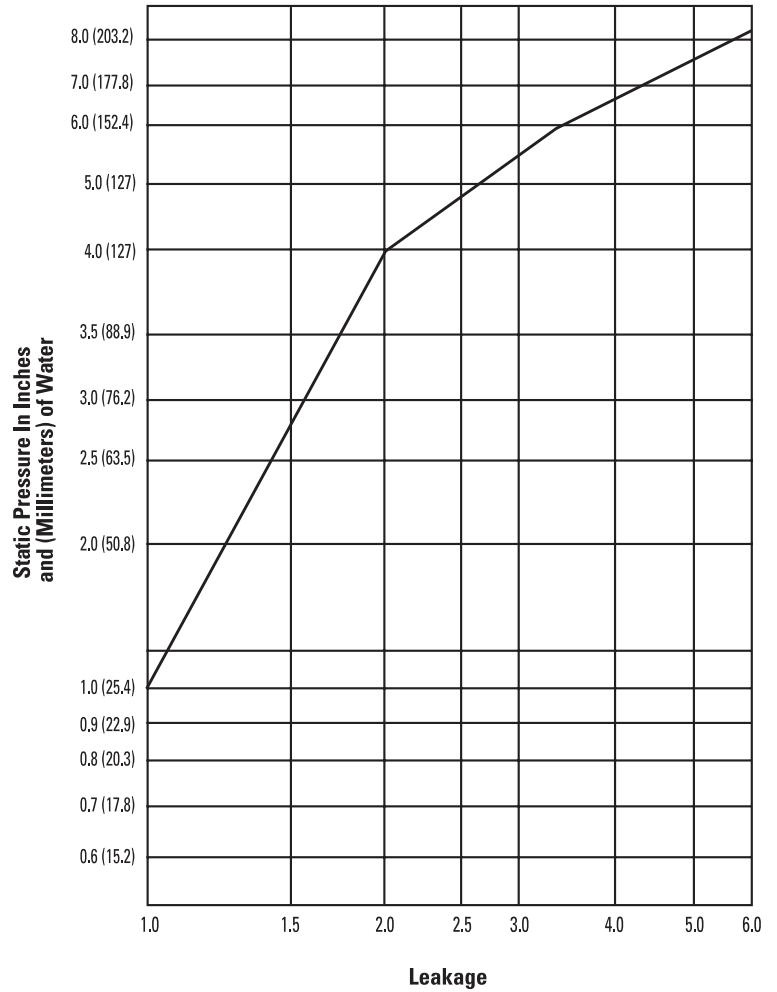
*All shown with jackshaft.

Pressure Drop – Damper Open 24" x 24" (610 mm x 610 mm)



Tested as per AMCA Std. 500, Fig. 5.3 – Air velocity shown in feet per minute and in () meters per second.

Air Leakage – Damper Closed 48" x 48" (1219 mm x 1219 mm)



Tested as per AMCA Std. 500, Fig. 5.5 – leakage in CFM per sq. ft.

LEAKAGE at 1" W.G. = 1 cfm/sq.ft. (Equivalent to AMCA Class 1A)

LEAKAGE at 2.5" W.G. = 1.4 cfm/sq.ft.

LEAKAGE at 4" W.G. = 2 cfm/sq.ft. (Equivalent to AMCA Class 1)

Fig. 5.3:

Illustrates a fully ducted damper. This configuration has the lowest pressure drop of the three test configurations because entrance and exit losses are minimized by straight duct runs upstream and downstream of the damper.

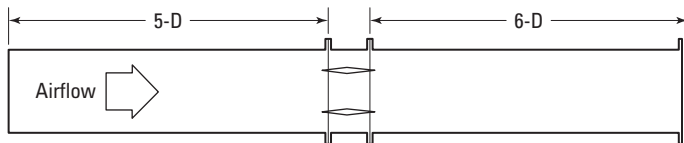


Figure 5.3

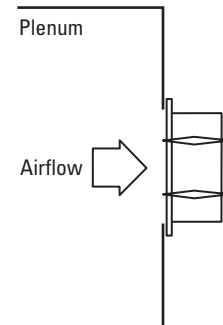


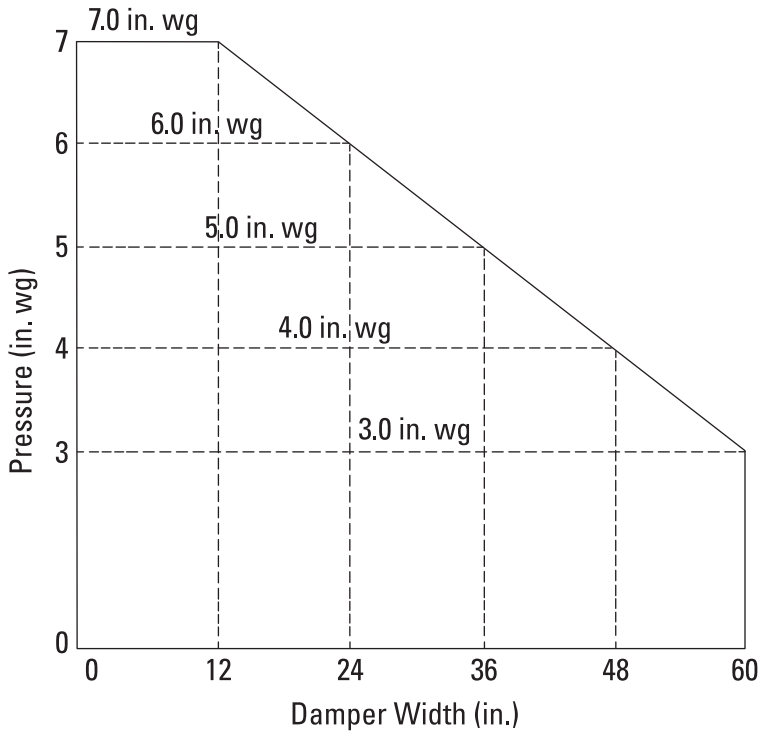
Figure 5.5

Fig. 5.5:

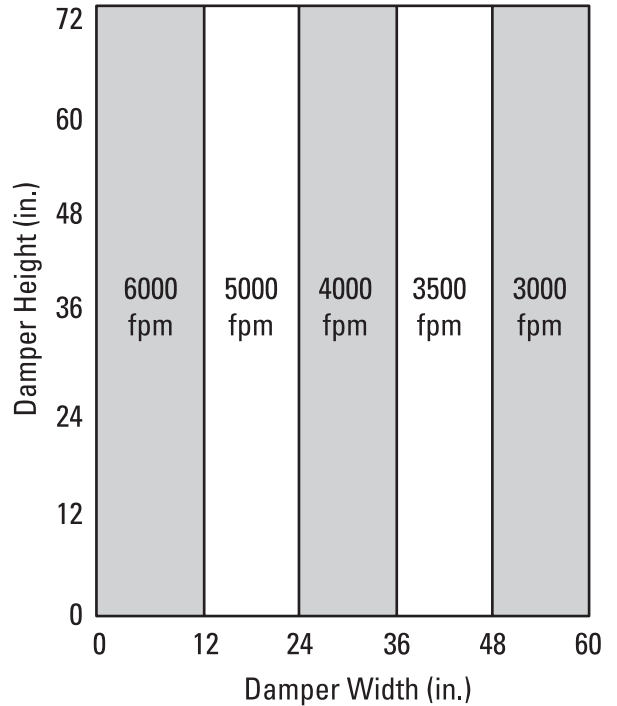
Illustrates a plenum mounted damper. This configuration has the highest pressure drop because of extremely high entrance and exit losses due to the sudden changes of area in the system.



Pressure Limitations



Velocity Limitations



SCD-IB Notes:

The SCD-IB is suitable for applications with total pressures up to 3.0" w.g. and a maximum velocity of 3000 FPM. It may be used in applications exceeding 3.0" w.g. and/or exceeding 3000 FPM by reducing the damper width as seen in the above diagrams.

For correct damper sizing consult the factory when exceeding standard design limit of 3.0" and/or 3000 fpm.

- The SCD-IB series is not recommended for vertical blades installation. Always connect motors to power blade and on linkage side.
- NCA dampers are designed to be self supporting only in largest single section size. Larger size may require external bracing. Recommended bracing minimum of 8' (2438). The amount and size will depend on unit size and system pressure.

Applicable NCA Literature:

Basic Control Damper Installation, Operation and Maintenance (IOM).

Tag: Engineer:
 Project: Contractor:
 Location: Architect:
 Date: Submitted by:



Model SCD-LL-57

Low Leakage Steel Control Damper with 3V Blades

Application:

The SCD-LL-57 is a general purpose commercial control damper for use in an automatic or manual balancing control applications where tight sealing is of primary importance. The SCD-LL-57 is intended for low to medium pressure and velocity applications and can be provided in opposed or parallel blade orientations. When low leakage damper requirements are NOT needed, see Model SCD-57.

The SCD-LL-57 is the perfect solution for an economical and ruggedly built control damper with countless options for automatic control. The SCD-LL-57 utilizes a low profile head and sill frame to maximize free area on sizes 17" (432) and less in height. The SCD-LL-57 utilizes varying blade widths (see side cut section) so please ensure clearance is attained before installing.

Standard Construction:

FRAME: Roll-formed 20 ga. galvanized steel hat-section with staked corners with integral bracing.

BLADES: 16 ga. triple-vee (3V) profile roll-formed, galvanized steel
 Minimum 4.25"w (108), Maximum 7.25"w (184)

BEARINGS: Nylon. Press-fit into frame.

AXLES: Square, plated steel.

SEALS: Pressure sensitive, 250°F dual durometer blade edge seals and flexible stainless steel jamb seals.

LINKAGE: Concealed in frame. Linkage bars are 12 ga. thick galvanized steel.

FINISH: Mill galvanized.

EXTENDED SHAFT: Removable, 6" long x 1/2" dia. (152 x 13) plated steel coupled to square axle. Dampers 32" (813) and wider will be supplied with a jackshaft extending 6" (152) past frame.

MAXIMUM TEMPERATURE: 250°

MINIMUM SIZE: 5"w x 5"h (127 x 127).

MAXIMUM SIZE:

Single Section - 48"w x 72"h (1219 x 1829).

Multiple Section - Unlimited size.

All dimensions shown in inches, parentheses () indicate millimeters.

Optional Construction:

Standoffs:

2" (51)

1" (25)

Flange:

Single Flange

Double Flange

Add jackshaft

Operators:

Actuators: Pnuematic or Electric: 24V 120V

Manual Quadrant Pull Chain

Epoxy Coating Finish

Blade Action:

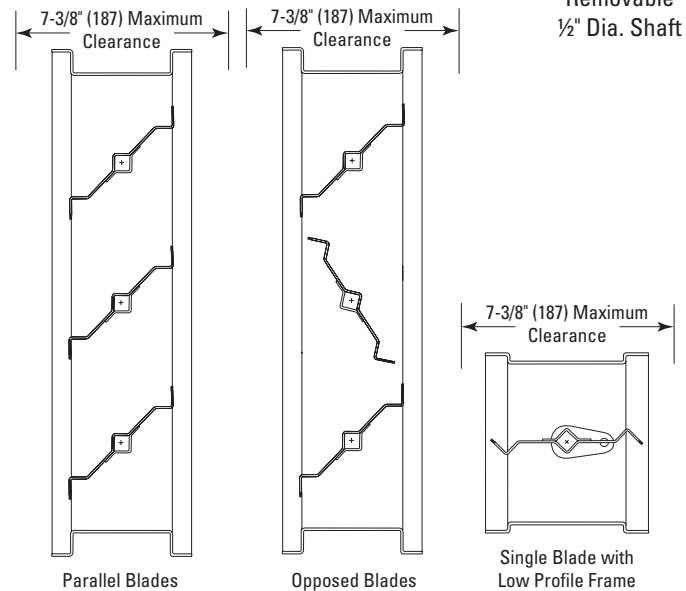
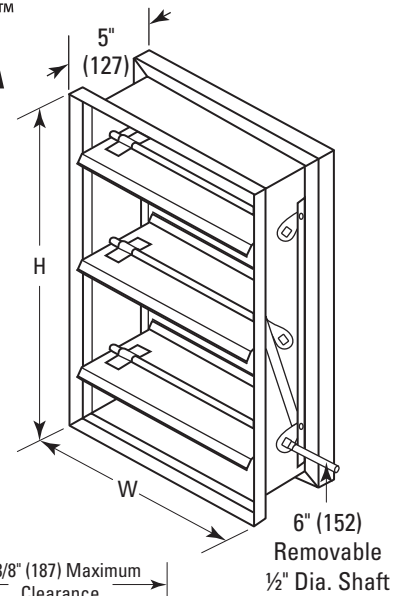
Parallel Opposed

Face and Bypass (See Face Bypass Mixing Damper Supplemental Submittal)

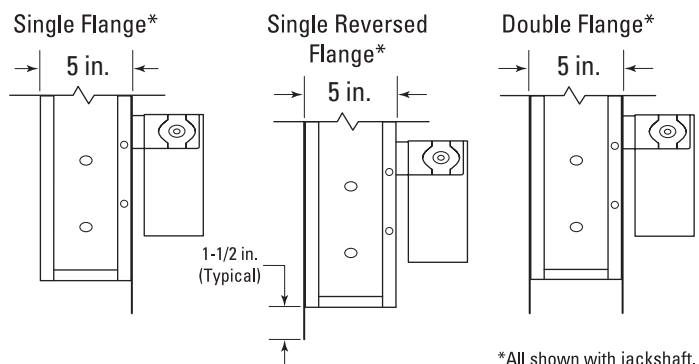
Bronze Oilite Bearings



Width and Height provided 1/4" (6) under ordered dimensions.



*Low Profile frame provided on dampers under 18" in height.



*All shown with jackshaft.

PRESSURE DROP

Pressure drop testing was conducted by an independent laboratory in accordance with the AMCA Standard 500-D, Fig. 5.3 ductwork upstream & downstream.

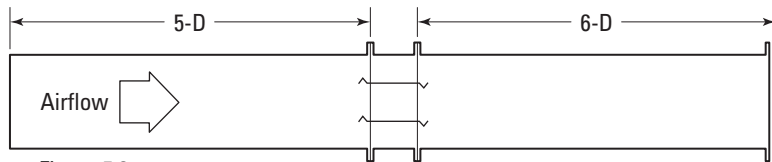
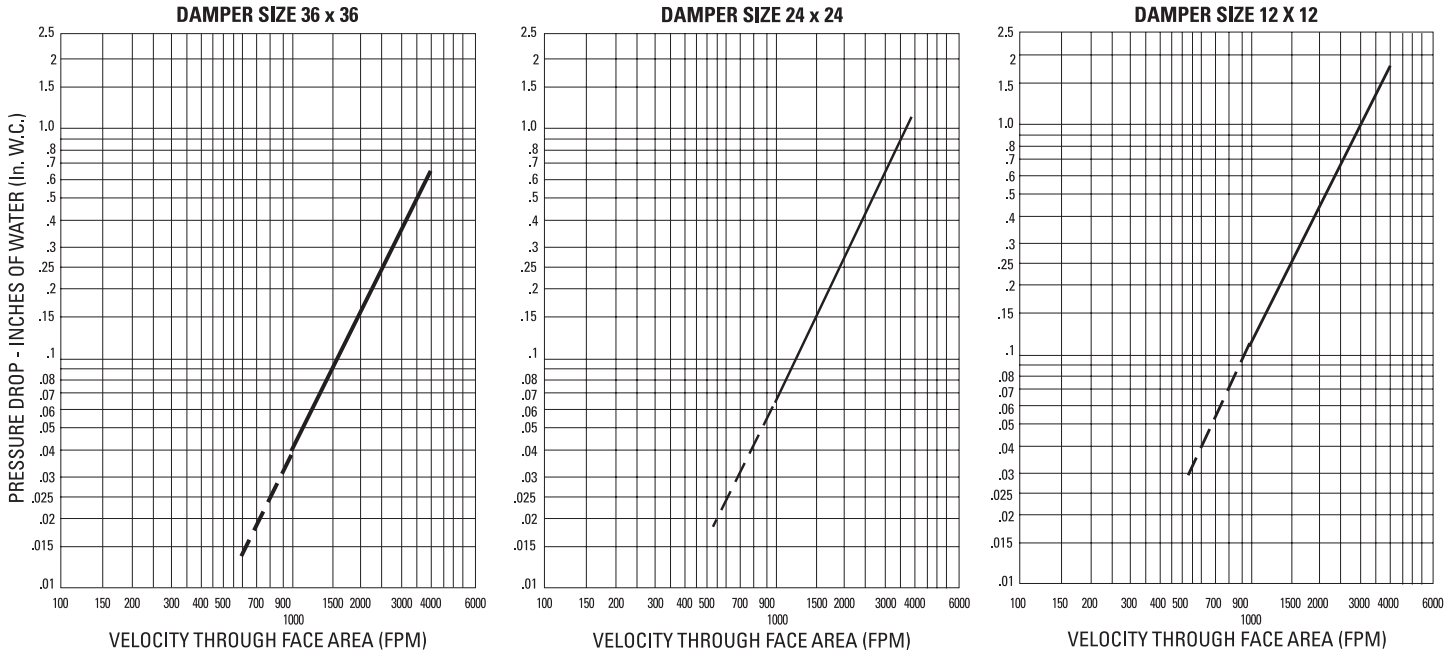


Figure 5.3

Fig. 5.3:

Illustrates a fully ducted damper. This configuration has the lowest pressure drop of the three test configurations because entrance and exit losses are minimized by straight duct runs upstream and downstream of the damper.

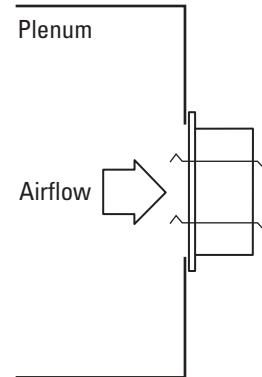
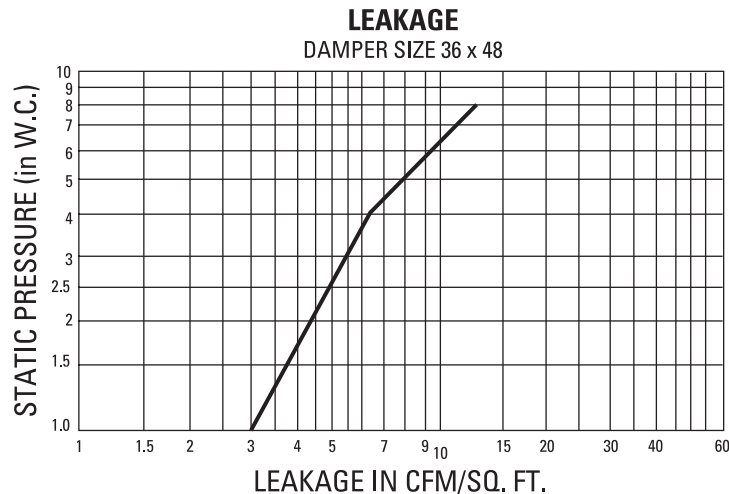


Figure 5.5

Fig. 5.5:

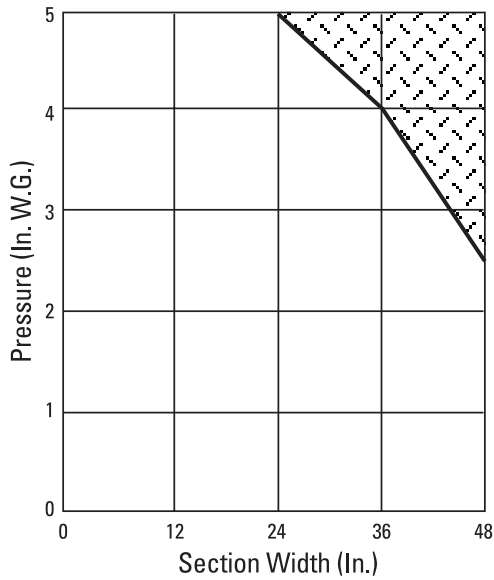
Illustrates a plenum mounted damper. This configuration has the highest pressure drop because of extremely high entrance and exit losses due to the sudden changes of area in the system.

LEAKAGE at 1" W.G. = 3 cfm/sq.ft. (Equivalent to AMCA Class 1A)
LEAKAGE at 2.5" W.G. = 5 cfm/sq.ft.
LEAKAGE at 4" W.G. = 6.3 cfm/sq.ft. (Equivalent to AMCA Class 1)

Leakage Performance test was conducted by an independent laboratory in accordance with AMCA Standard 500-D Figure 5.5 and is expressed as CFM/SQ. FT. of damper face area.



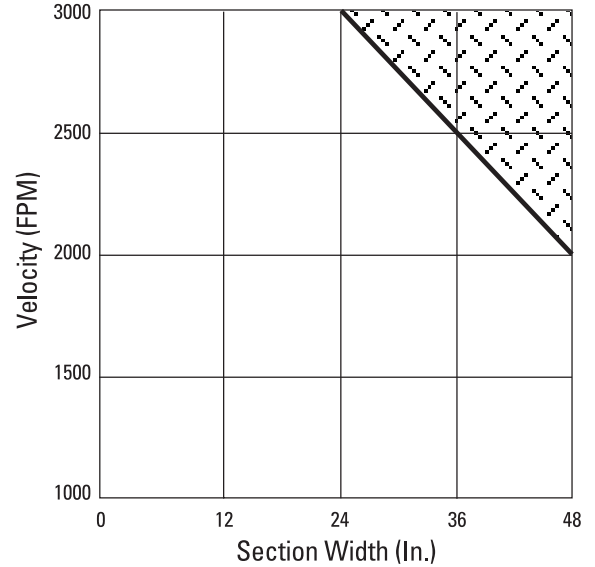
PRESSURE LIMITATIONS



Pressure & Velocity Limitations presented in the adjoining graphs are conservative in order to avoid mis-applications.

Please contact factory for application guidance if your requirements exceed published limitations.

VELOCITY LIMITATIONS



SCD-LL-57 Notes:

- All dampers are fabricated 1/4" (6) under listed size unless specified "exact or actual"
- The SCD-LL-57 must be installed so that blades run horizontally. It is NOT recommended for blades to run vertically.
- Always connect motors to power blade and on linkage side (if applicable).
- NCA dampers are designed to be self supporting only in largest single section size. Larger size may require external bracing. Recommended bracing minimum of 8' (2438). The amount and size will depend on unit size and system pressure.
- All dampers 32" (813) and over are supplied with Jackshifting.

Applicable NCA Literature:

Basic Control Damper Installation, Operation and Maintenance (IOM).

Tag: _____ Engineer: _____
 Project: _____ Contractor: _____
 Location: _____ Architect: _____
 Date: _____ Submitted by: _____



Model SCD-LL-HD-57

Low Leakage Heavy Duty Steel Control Damper with 3V Blades



Application:

The SCD-LL-HD-57 is a heavy duty commercial control damper for use in automatic control applications where tight sealing is of primary importance. The SCD-LL-HD-57 is intended for high pressure and/or high velocity applications and can be provided in opposed or parallel blade orientations.

The SCD-LL-57 is the perfect solution for an economical an extremely rugged built control damper with countless options for automatic control. The SCD-LL-HD-57 utilizes a welded C Channel insert for reinforcing the frame of the damper and continuous galvanized steel rigidizing sections for reinforcing the blades. The SCD-LL-HD-57 utilizes varying blade widths (see side cut section) so please ensure clearance is attained before installing.

Standard Construction:

FRAME: Roll-formed 20 ga. galvanized steel hat-section with staked with integral bracing & galvanized steel C channel insert welded to provide equivalent of 12 ga. steel.

BLADES: 16 ga. triple-vee (3V) profile steel & 16 ga. rollformed galvanized steel continuous rigidizing section to provide equivalent of 10 ga. steel.

BEARINGS: Nylon. Press-fit into frame.

AXLES: Square, plated steel.

SEALS: Pressure sensitive, 250°F dual durometer blade edge seals and flexible stainless steel jamb seals.

LINKAGE: Concealed in frame. Linkage bars are 12 ga. thick galvanized steel.

FINISH: Mill galvanized.

EXTENDED SHAFT: Removable, 6" long x 1/2" dia. (152 x 13) plated steel coupled to square axle. Removable, 6" long x 1/2" dia. (152 x 13) plated steel coupled to square axle. Dampers 32" (813) and wider will be supplied with a jackshaft extending 6" (152) past frame.

MAXIMUM TEMPERATURE: 250°F

MINIMUM SIZE: 8" w x 8" h (127 x 127).

MAXIMUM SIZE:

Single Section - 48" w x 72" h (1219 x 1829).

Multiple Section - Unlimited size.

All dimensions shown in inches, parentheses () indicate millimeters.

Optional Construction:

Standoffs:

2" (51)

1" (25)

Flange:

Single Flange

Double Flange

Add jackshaft

Operators:

Actuators: Pnuematic or Electric: 24V 120V

Manual Quadrant Pull Chain

Epoxy Coating Finish

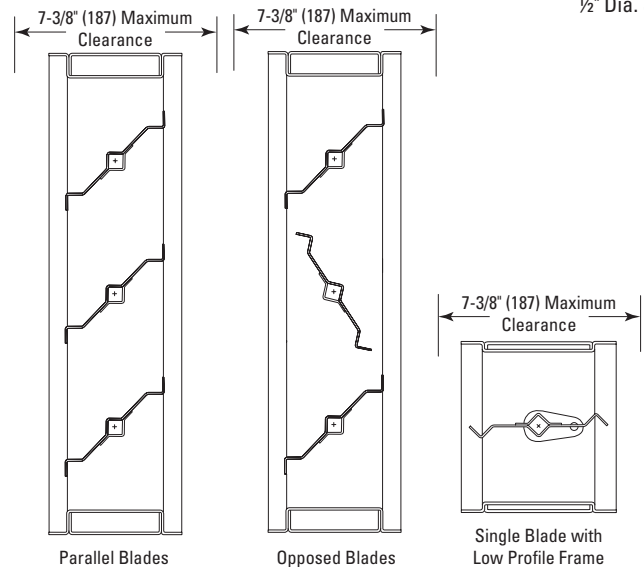
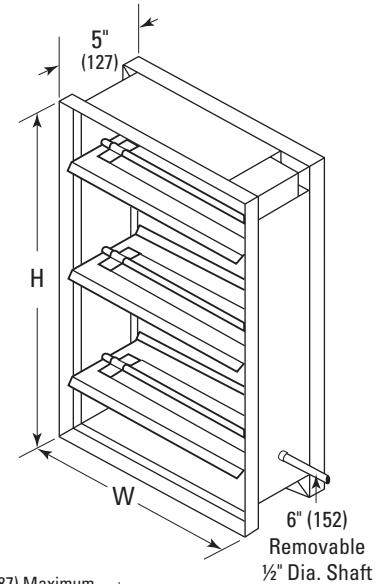
Blade Action:

Parallel Opposed

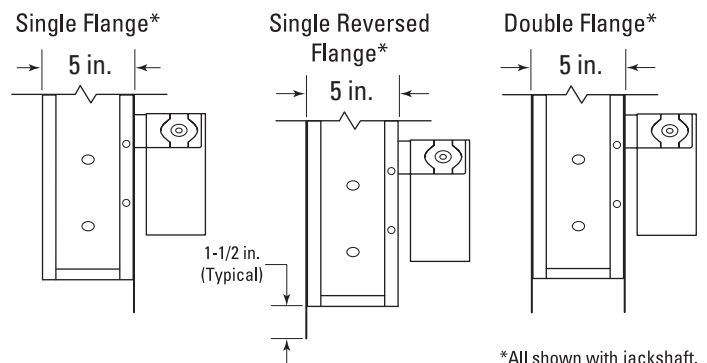
Face and Bypass (See Face Bypass Mixing Damper Supplemental Submittal)

Bronze Oilite Bearings

Width and Height provided
 1/4" (6) under ordered
 dimensions.



*Low Profile frame provided on dampers under 18" in height.



*All shown with jackshaft.

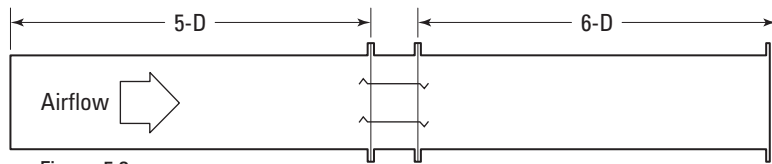
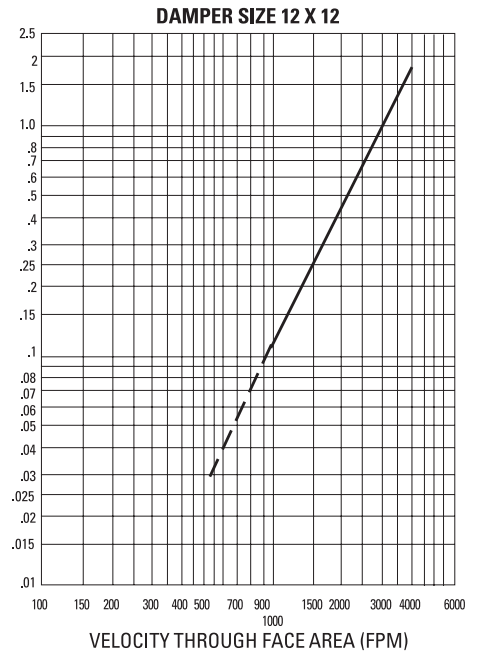
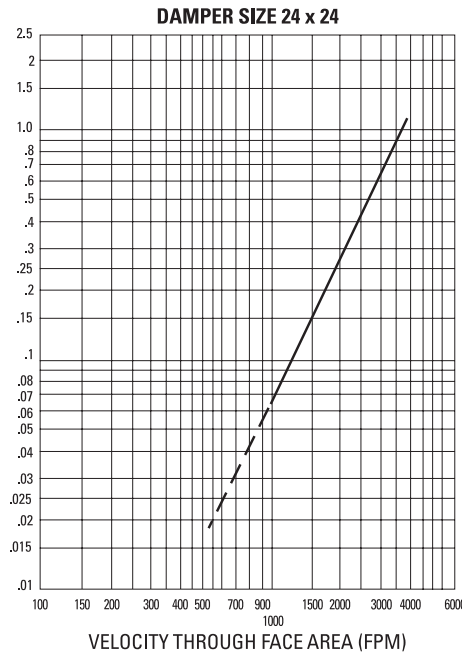
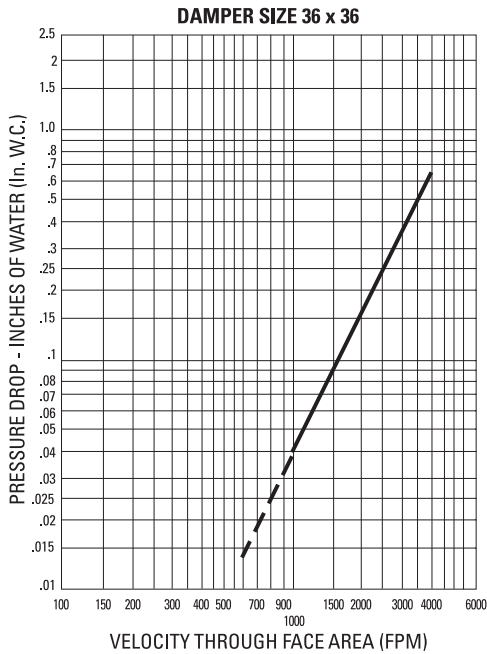
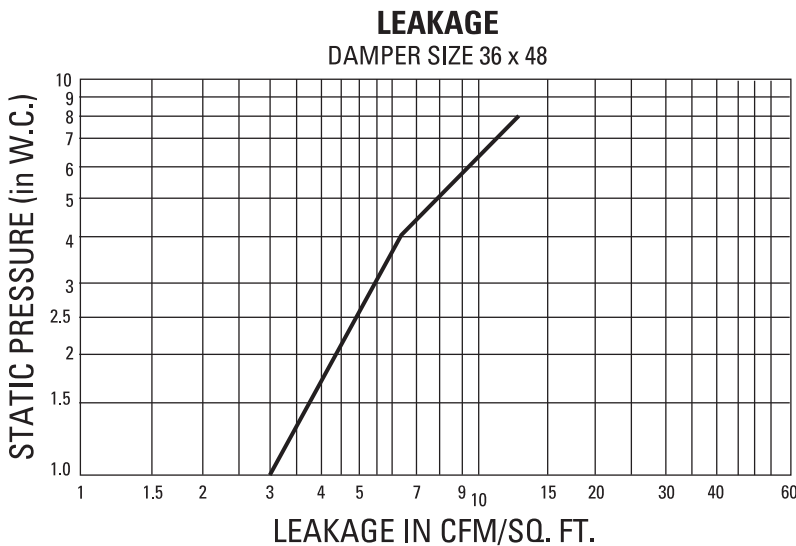


Figure 5.3

Fig. 5.3:

Illustrates a fully ducted damper. This configuration has the lowest pressure drop of the three test configurations because entrance and exit losses are minimized by straight duct runs upstream and downstream of the damper.



LEAKAGE at 1" W.G. = 3 cfm/sq.ft. (Equivalent to AMCA Class 1A)
LEAKAGE at 2.5" W.G. = 5 cfm/sq.ft.
LEAKAGE at 4" W.G. = 6.3 cfm/sq.ft. (Equivalent to AMCA Class 1)

Leakage Performance test was conducted by an independent laboratory in accordance with AMCA Standard 500-D Figure 5.5 and is expressed as CFM/SQ. FT. of damper face area.

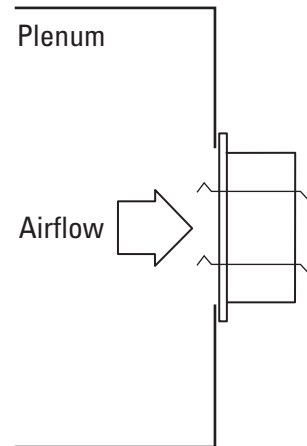


Figure 5.5

Fig. 5.5:

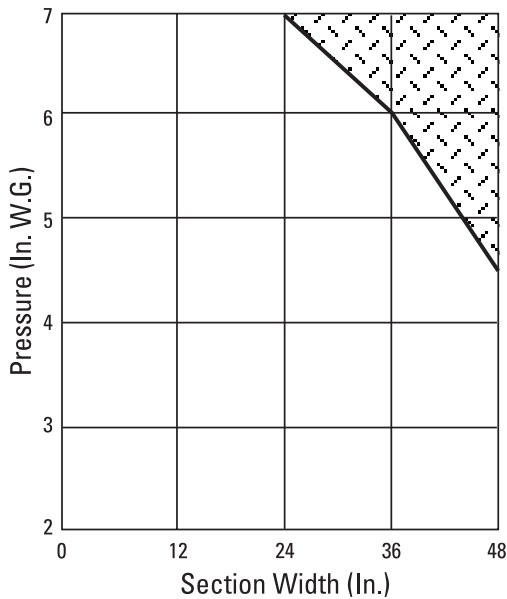
Illustrates a plenum mounted damper. This configuration has the highest pressure drop because of extremely high entrance and exit losses due to the sudden changes of area in the system.



PERFORMANCE DATA - Model SCD-LL-HD-57
Low Leakage Heavy Duty Steel Control Damper
with 3V Blades



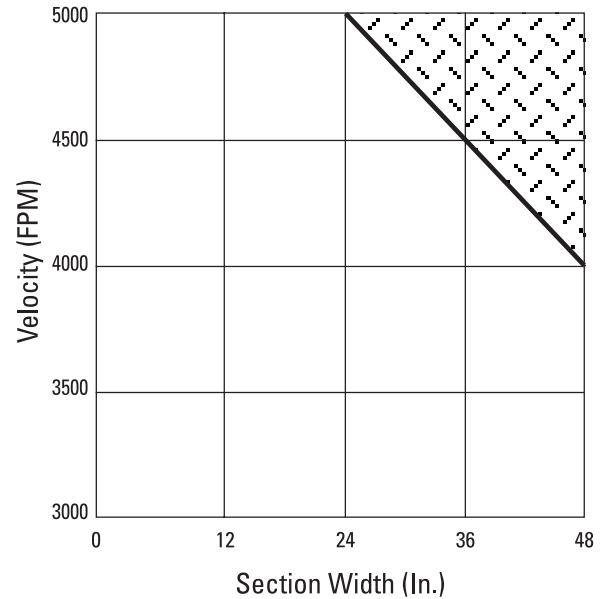
PRESSURE LIMITATIONS



Pressure & Velocity Limitations presented in the adjoining graphs are conservative in order to avoid mis-applications.

Please contact factory for application guidance if your requirements exceed published limitations.

VELOCITY LIMITATIONS



SCD-LL-HD-57 Notes:

- All dampers are fabricated 1/4" (6) under listed size unless specified "exact or actual"
- The SCD-LL-HD-57 must be installed so that blades run horizontally. It is NOT recommended for blades to run vertically.
- Always connect motors to power blade and on linkage side (if applicable).
- NCA dampers are designed to be self supporting only in largest single section size. Larger size may require external bracing. Recommended bracing minimum of 8' (2438). The amount and size will depend on unit size and system pressure.
- All dampers 32" (813) and over are supplied with Jackshafting.

Applicable NCA Literature:

Basic Control Damper Installation, Operation and Maintenance (IOM).

Tag: _____ Engineer: _____
 Project: _____ Contractor: _____
 Location: _____ Architect: _____
 Date: _____ Submitted by: _____



True Round Steel Control Damper

Application:

The SCD-RD-88 is a true round control damper for use in low to medium velocity and pressure applications where tight sealing is not of primary concern. For a low leakage true round control damper, see Model SCD-RD-LL-88.

The SCD-RD-88 includes a one piece extended square rod for connecting operators in the field. The SCD-RD-88 can also be provided with numerous different factory mounted operators.

Standard Construction:

FRAME - Galvanized Steel, Rolled Reinforcement	
DIAMETER	GAUGE
4" - 8" (102 - 204)	22 ga.
9" - 12" (229 - 305)	20 ga.
13" - 24" (330 - 610)	18 ga.

BLADE: 16 ga. Galvanized steel with welded channel reinforcement.

BEARINGS: Bronze Oilite.

AXLES: 3/8" (10) square, plated steel.

FINISH: Mill galvanized.

EXTENDED SHAFT: 3/8" (10) square, plated steel 4" (102) beyond frame.

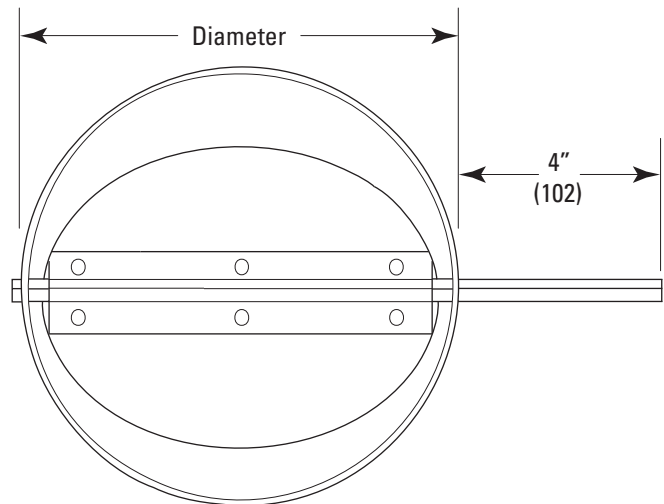
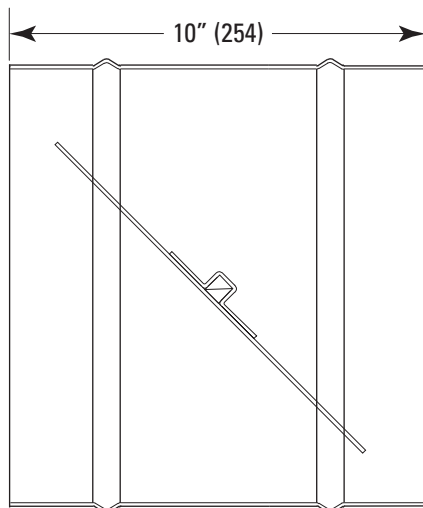
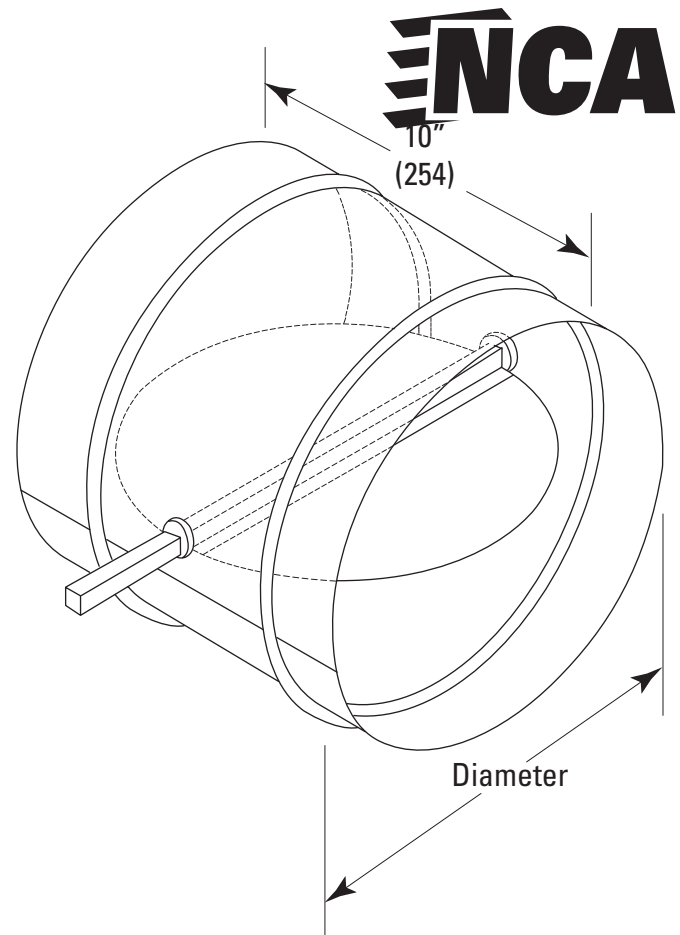
MAXIMUM TEMPERATURE: 200°F

DAMPER SIZES: 4" to 24" (102 to 610) diameters.

All dimensions shown in inches, parentheses () indicate millimeters.

Note:

- Dampers fabricated 1/8" (3) smaller than given "duct" dimensions.



Tag: _____ Engineer: _____
 Project: _____ Contractor: _____
 Location: _____ Architect: _____
 Date: _____ Submitted by: _____



Model SCD-RD-LL-88
 True Round Low Leakage
 Steel Control Damper



Application:

The SCD-RD-LL-88 is a true round control damper for use in low to medium velocity and pressure applications where tight sealing is of primary concern. For applications where leakage is not important, see Model SCD-RD-88.

The SCD-RD-LL-88 includes a one piece extended rod for connecting operators in the field. The SCD-RD-LL-88 can also be provided with numerous different factory mounted operators.

Standard Construction:

FRAME - Galvanized Steel, Rolled Enforcement	
DIAMETER	GAUGE
4" - 8" (102 - 204)	22 ga.
9" - 12" (229 - 305)	20 ga.
13" - 24" (330 - 610)	18 ga.

BLADES: 16 ga. galvanized steel with welded channel reinforcement.

BEARINGS: Bronze Oilite.

AXLES: 3/8" (10) square, plated steel.

SEALS: Pressure sensitive, 450°F silicone seals. Air pressure assists sealing effects.

FINISH: Mill galvanized.

EXTENDED SHAFT: Continuous 3/8" (10) square, plated steel 4" (102) beyond frame.

MAXIMUM TEMPERATURE: 200°F

DAMPER SIZES: 4" to 24" (102 to 610) diameters.

LEAKAGE:

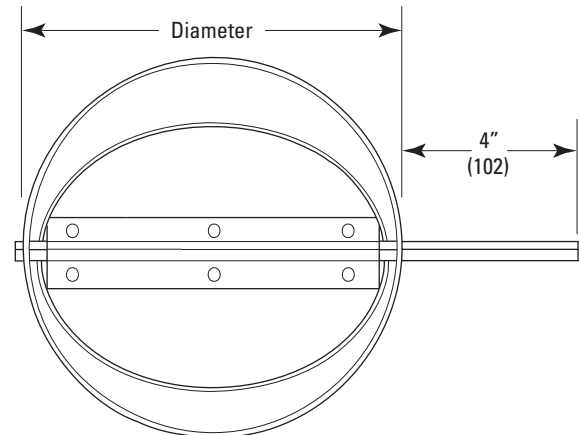
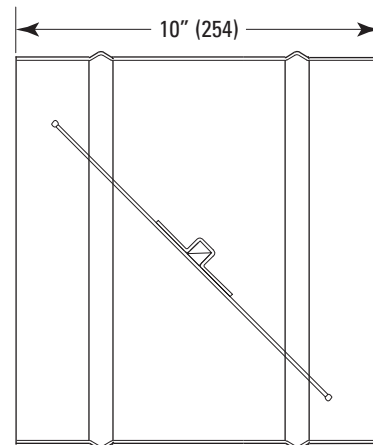
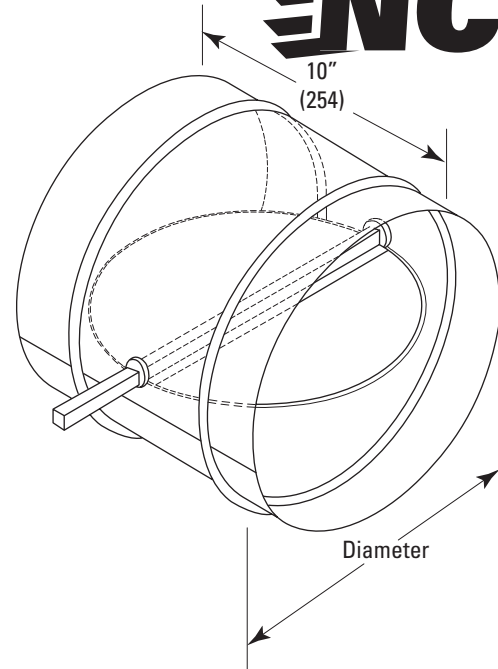
Pressure:	At 1.0" W.C.	At 2.5" W.C.	At 4.0" W.C.
Leakage (CFM/Sq.Ft.):	1 Equivalent to AMCA Class 1A	1.5	4 Equivalent to AMCA Class 1

Leakage Performance test was conducted by an independent laboratory in accordance with AMCA Standard 500-D Figure 5.5 and is expressed as CFM/Sq.Ft. of damper face area.

All dimensions shown in inches, parentheses () indicate millimeters.

Note:

- Dampers fabricated 1/8" (3) smaller than given "duct" dimensions.



Tag: _____ Engineer: _____
 Project: _____ Contractor: _____
 Location: _____ Architect: _____
 Date: _____ Submitted by: _____



Model OBD-106

Opposed Blade Control Damper
with External Linkage

Application:

The OBD-106 is an opposed blade control damper with external, in the airstream linkage designed to allow for servicing in the field. The OBD-106 is a versatile control damper in that can be manufactured using many different gauge metals as well as materials.

The OBD-106 is the perfect solution for a ruggedly built control damper with countless options in construction. The OBD-106 is meant for low to medium pressure and velocity applications.

Standard Construction:

FRAME: 3-3/8" x 5/8" (86 x 16) x 16 ga. roll-formed galvanized steel hat section with welded corners.

BLADES: 16 ga. roll-formed galvanized steel on 6" (152) centers.

BEARINGS: Permanently lubricated oilite bronze, press fit into frame.

AXLES: 1/2" dia. (13) plated steel.

LINKAGE: Commercial grade, brass pivots, machine riveted to blade.

LINKAGE TIE ROD: 1/4" dia. (6) plated steel.

OPERATOR SHAFT: 6" x 1/2" dia. (152 x 13) plated steel.

JACKSHAFT: 1/2" (13) diameter standard on dampers 32" (813) and wider and will extend 6" (152) past the frame.

FINISH: Mill galvanized.

MINIMUM DAMPER SIZE: 6"w x 12"h (152 x 305) (For sizes smaller than this, see model PBD-100).

MAXIMUM DAMPER SIZE:

Single Section - 48"w x 72"h (152 x 305)
 Multi-Section - Unlimited

Optional Construction:

Seals:

- Vinyl blade seals and flexible stainless steel jamb seals
- Stainless steel blade seals and flexible stainless steel jamb seals

Operators:

- Actuators: Pneumatic or Electric: 24V 120V
- Manual quadrant
- Pull chain

Epoxy Coating

Face & Bypass:

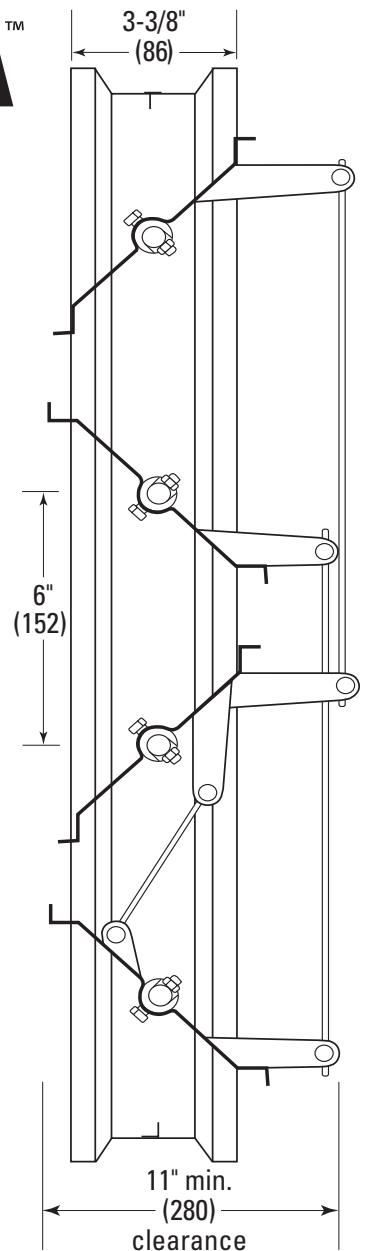
- Right angle and straight line mixing dampers

Frame Material:

- 14 Gauge galvanized steel
- 12 Gauge galvanized steel
- 16 Gauge 304 Stainless Steel
- 16 Gauge 316 Stainless Steel
- .080 Aluminum

Blade Material:

- 14 Gauge galvanized steel
- 16 Gauge 304 Stainless Steel
- 16 Gauge 316 Stainless Steel
- .080 Aluminum

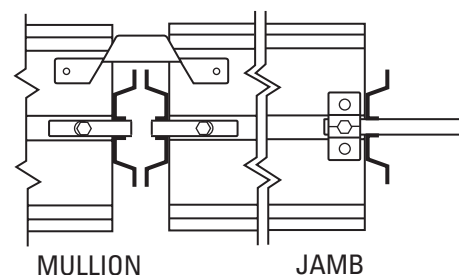


Note:

Units 32" (813) and wider will be jackshafted and the clearance required for frame, blades and bearing bracket will be approximately 13" (330).

Width and Height provided 1/4" (6) under ordered dimensions.

Top Section Showing Mullion:



All dimensions shown in inches, parentheses () indicate millimeters.

PRESSURE DROP

Pressure drop testing was conducted by an independent laboratory in accordance with the AMCA Standard 500-D, Fig. 5.3 ductwork upstream & downstream.

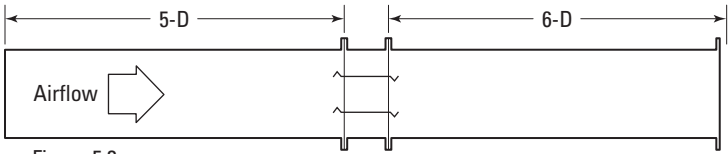
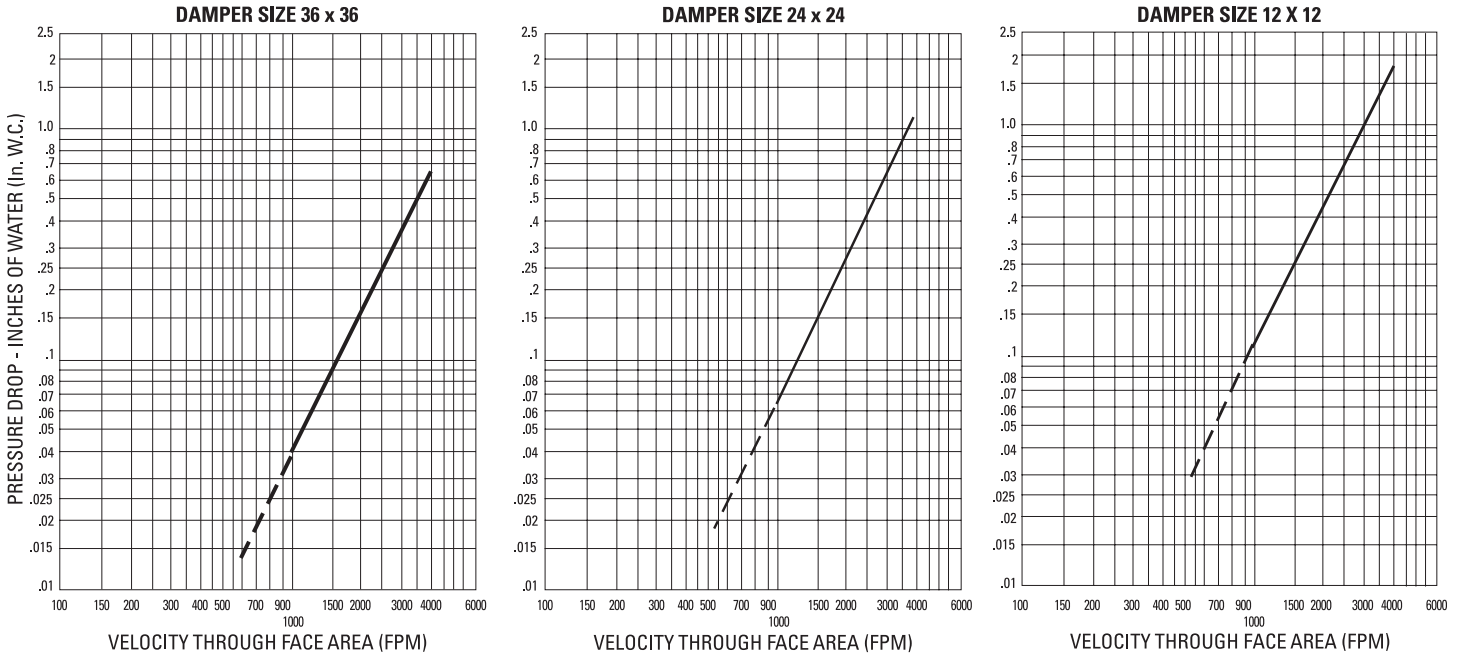


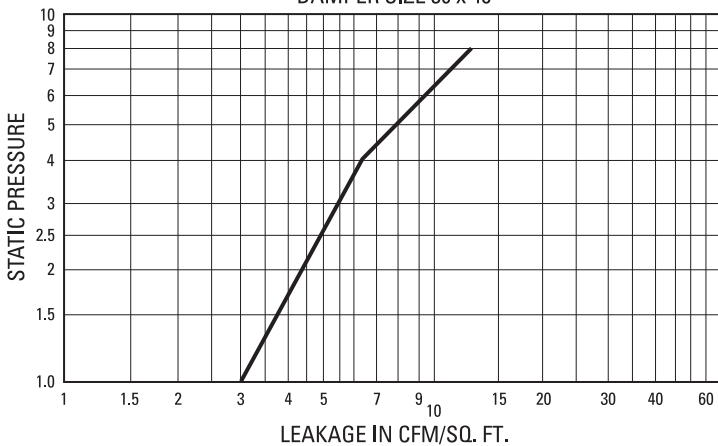
Fig. 5.3:

Illustrates a fully ducted damper. This configuration has the lowest pressure drop of the three test configurations because entrance and exit losses are minimized by straight duct runs upstream and downstream of the damper.

Figure 5.3

LEAKAGE

WHEN BLADE & JAMB SEALS ARE SELECTED
 DAMPER SIZE 36 x 48



- LEAKAGE at 1" W.G. = 3 cfm/sq.ft. (Equivalent to AMCA Class 1A)**
- LEAKAGE at 2.5" W.G. = 5 cfm/sq.ft.**
- LEAKAGE at 4" W.G. = 6.3 cfm/sq.ft. (Equivalent to AMCA Class 1)**

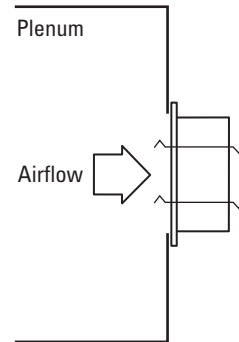


Figure 5.5

Fig. 5.5:

Illustrates a plenum mounted damper. This configuration has the highest pressure drop because of extremely high entrance and exit losses due to the sudden changes of area in the system.

Leakage Performance test was conducted by an independent laboratory in accordance with AMCA Standard 500-D Figure 5.5 and is expressed as CFM/SQ. FT. of damper face area. **Damper requires both blade edge seals and jamb seals to achieve leakage performance depicted.**

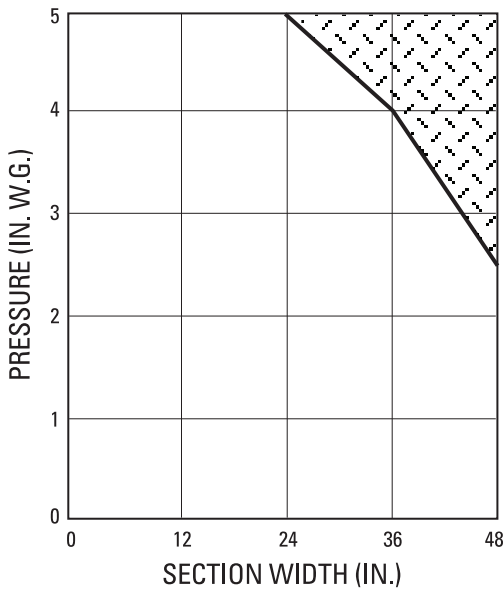


PERFORMANCE DATA - Model OBD-106

Opposed Blade Control Damper with External Linkage



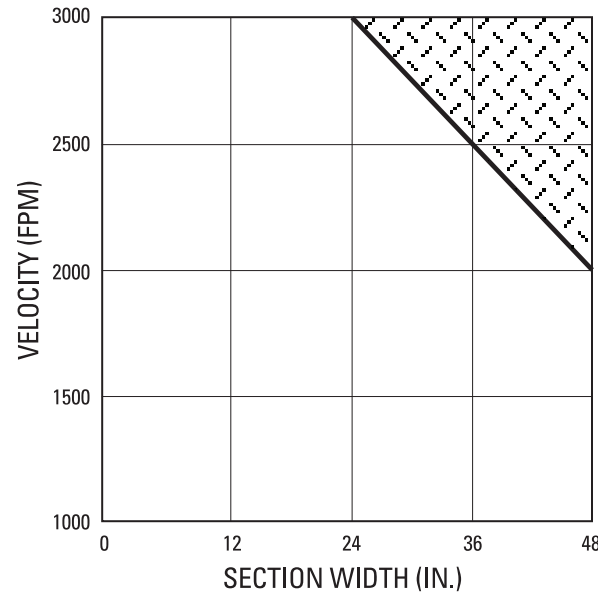
PRESSURE LIMITATIONS



Pressure & Velocity Limitations presented in the adjoining graphs are conservative in order to avoid mis-applications.

Please contact factory for application guidance if your requirements exceed published limitations.

VELOCITY LIMITATIONS



OBD-106 Notes:

- All dampers are fabricated 1/4" (6) under listed size unless specified "exact or actual".
- The OBD-106 must be installed so that blades run horizontally. It is NOT recommended for blades to run vertically.
- Always connect motors to power blade and on linkage side (if applicable).
- NCA dampers are designed to be self supporting only in largest single section size. Larger size may require external bracing. Recommended bracing minimum of 8' (2438). The amount and size will depend on unit size and system pressure.

Applicable NCA Literature:

Basic Control Damper Installation, Operation and Maintenance (IOM).

Tag: Engineer:
 Project: Contractor:
 Location: Architect:
 Date: Submitted by:

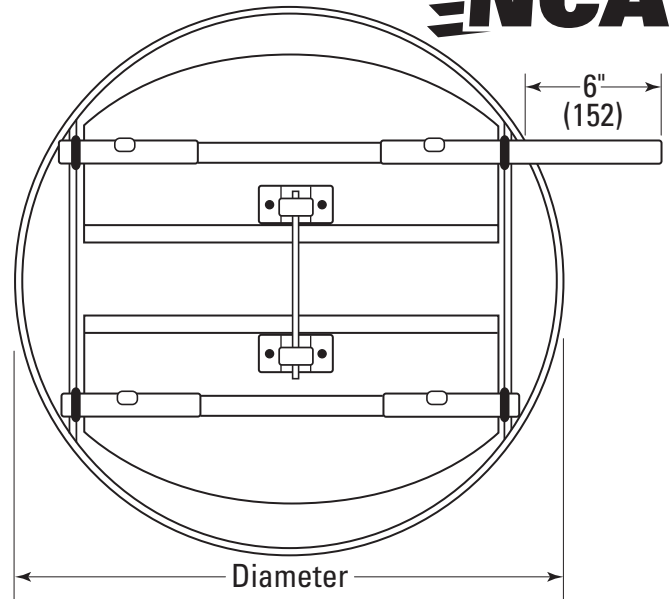


Application:

The ruggedly built OBD-106R is an opposed blade round control damper with external, in the airstream linkage. The OBD-106R accomplishes opposed blade movement, which is best for modulating applications, while remaining a true round control damper. The OBD-106R is an efficient solution to having to add round transitions to a square opposed blade control damper.

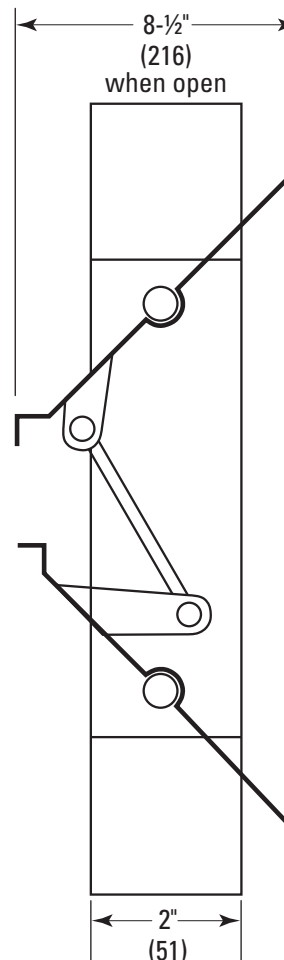
Standard Construction:

- FRAME:** 2" (51) x 12 ga. galvanized steel rolled and welded.
- BLADES:** 16 ga. galvanized steel.
- BEARINGS:** Permanently lubricated oilite bronze, press fit into frame.
- AXLES:** 1/2" (13) dia. plated steel.
- LINKAGE:** Commercial grade, brass pivots, machine riveted to blade.
- LINKAGE TIE ROD:** 1/4" (6) dia. plated steel.
- OPERATOR SHAFT:** 6" x 1/2" (152 x 13) dia. plated steel.
- FINISH:** Mill galvanized.
- MINIMUM SIZE:** 14" (356)
- MAXIMUM SIZE:** 40" (1,016)



Optional Construction:

- Seals:**
 - Vinyl blade seals and flexible stainless steel jamb seals
 - Stainless steel blade seals and flexible stainless steel jamb seals
- Operators:**
 - Actuators: Pneumatic or Electric: 24V 120V
 - Manual quadrant
 - Pull chain
- Epoxy Coating**
- Face & Bypass:**
 - Right angle and straight line mixing dampers
- Material:**
 - Stainless Steel Type 304
 - .080 Aluminum



All dimensions shown in inches, parentheses () indicate millimeters.

Tag: Engineer:
 Project: Contractor:
 Location: Architect:
 Date: Submitted by:



Model PBD-100

Parallel Blade Control Damper
 with External Linkage

Application:

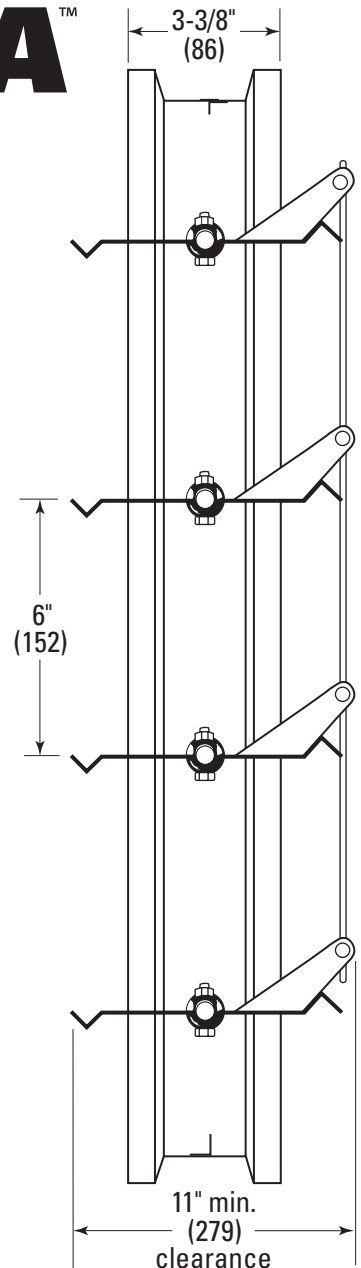
The PBD-100 is a parallel blade control damper with external, in the air-stream linkage designed to allow for servicing in the field. The PBD-100 is a versatile control damper in that it can be manufactured using many different gauge metals as well as materials.

Standard Construction:

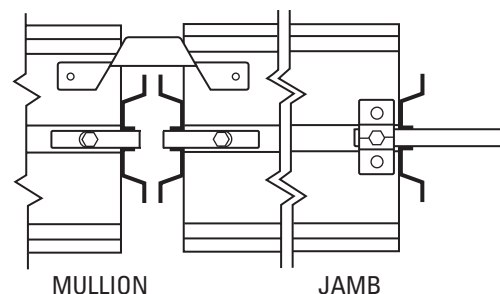
- FRAME:** 3-3/8" X 5/8" (86 x 16) x 16 ga. roll-formed galvanized steel hat section with welded corners.
- BLADES:** 16 ga. roll-formed galvanized steel on 6" (152) centers.
- BEARINGS:** Permanently lubricated oilite bronze, press fit into frame.
- AXLES:** 1/2" (13) dia. plated steel.
- LINKAGE:** Commercial grade, brass pivots, machine riveted to blade.
- LINKAGE TIE ROD:** 1/4" (6) dia. plated steel.
- OPERATOR SHAFT:** 6" x 1/2" (152 x 13) dia. plated steel.
- JACKSHAFT:** 1/2" (13) diameter standard on dampers 32" (813) and wider and will extend 6" (152) past the frame.
- FINISH:** Mill galvanized.
- MINIMUM DAMPER SIZE:** 5"w x 4"h (127 x 102)
- MINIMUM DAMPER SIZE:**
 Single Blade - 6"w x 6"h (152 x 152)
 Multi-Blade - 6"w x 12"h (152 x 305)
- MAXIMUM DAMPER SIZE:**
 Single Section - 48"w x 72"h (1,219 x 1,828)
 Multi-Section - Unlimited

Optional Construction:

- Seals:**
 Vinyl Blade & Flexible Stainless Steel Jamb Seals
 Stainless Steel Blade Seals & Flexible Stainless Steel Jamb Seals
- Operators:**
 Actuators: Pneumatic or Electric: 24V 120V
 Manual Quadrant
 Pull Chain
- Epoxy Coating**
- Face & Bypass:**
 Right Angle & Straight Line Mixing Dampers
- Frame Material:**
 14 Gauge galvanized steel
 12 Gauge galvanized steel
 16 Gauge 304 Stainless Steel
 16 Gauge 316 Stainless Steel
 .080 Aluminum
- Blade Material:**
 14 Gauge galvanized steel
 12 Gauge galvanized steel
 16 Gauge 304 Stainless Steel
 16 Gauge 316 Stainless Steel
 .080 Aluminum



Note:
 Units 32" (813) and wider will be jackshafted and the clearance required for frame, blades and bearing bracket will be approximately 13" (330).
 Width and Height provided 1/4" (6) under ordered dimensions.



All dimensions shown in inches, parentheses () indicate millimeters.

PRESSURE DROP

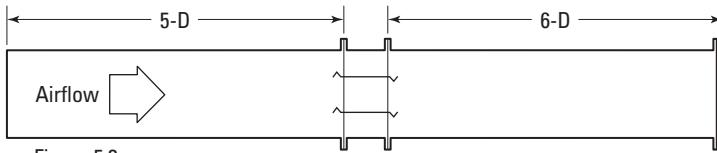
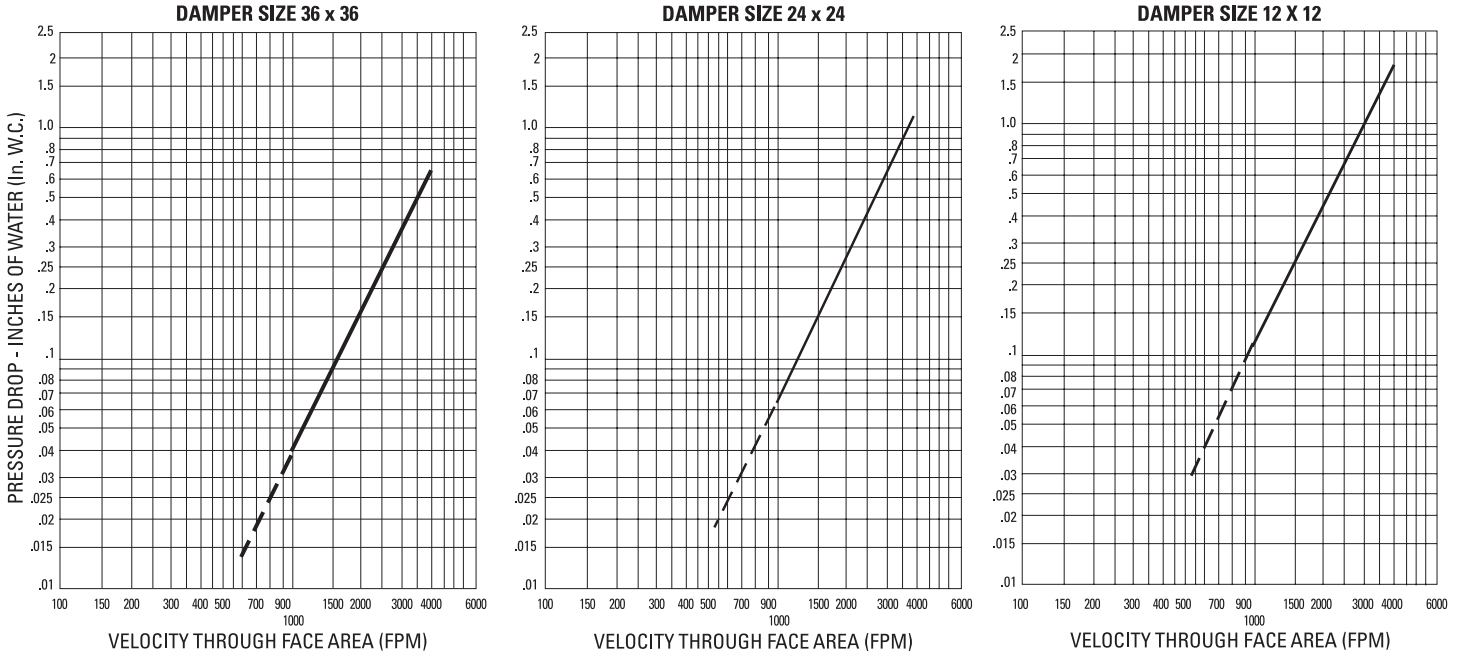


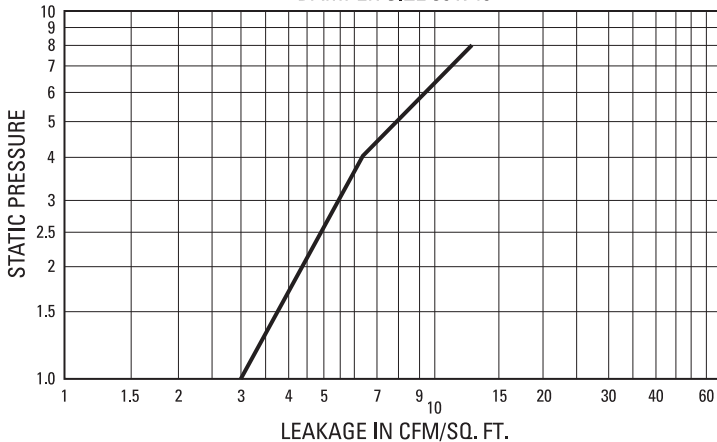
Figure 5.3

Figure 5.3:

Illustrates a fully ducted damper. This configuration has the lowest pressure drop of the three test configurations because entrance and exit losses are minimized by straight duct runs upstream and downstream of the damper.

LEAKAGE

WHEN BLADE & JAMB SEALS ARE SELECTED
 DAMPER SIZE 36 x 48



- LEAKAGE at 1" W.G.** = 3 cfm/sq.ft. (Equivalent to AMCA Class 1A)
- LEAKAGE at 2.5" W.G.** = 5 cfm/sq.ft.
- LEAKAGE at 4" W.G.** = 6.3 cfm/sq.ft. (Equivalent to AMCA Class 1)

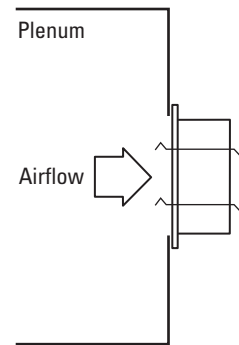


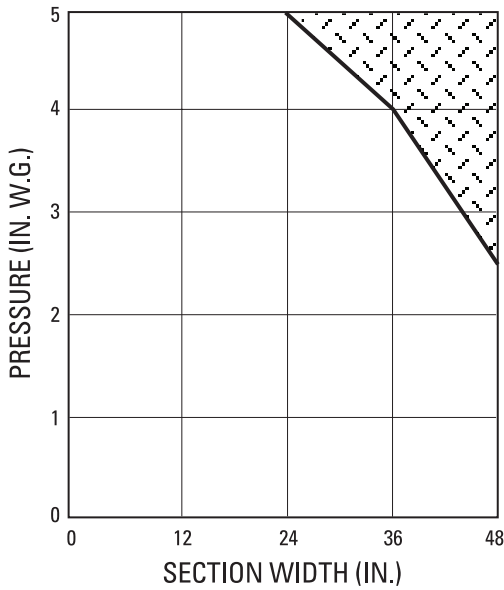
Figure 5.5

Figure 5.5:

Illustrates a plenum mounted damper. This configuration has the highest pressure drop because of extremely high entrance and exit losses due to the sudden changes of area in the system.

Leakage Performance test was conducted by an independent laboratory in accordance with AMCA Standard 500-D Figure 5.5 and is expressed as CFM/SQ. FT. of damper face area. **Damper requires both blade edge seals and jamb seals to achieve leakage performance depicted.**

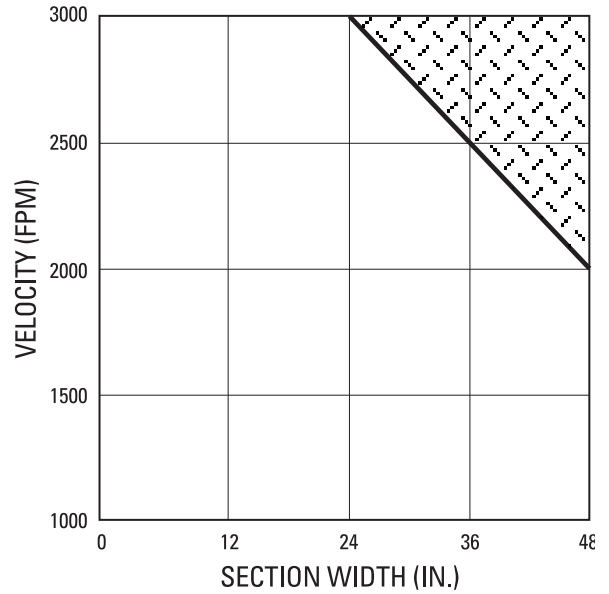
PRESSURE LIMITATIONS



Pressure & Velocity Limitations presented in the adjoining graphs are conservative in order to avoid mis-applications.

Please contact factory for application guidance if your requirements exceed published limitations.

VELOCITY LIMITATIONS



PBD-100 Notes:

- All dampers are fabricated 1/4" (6) under listed size unless specified "exact or actual"
- The PBD-100 must be installed so that blades run horizontally. It is NOT recommended for blades to run vertically.
- Always connect motors to power blade and on linkage side (if applicable).
- NCA dampers are designed to be self supporting only in largest single section size. Larger size may require external bracing. Recommended bracing minimum of 8' (2438). The amount and size will depend on unit size and system pressure.

Applicable NCA Literature:

Basic Control Damper Installation, Operation and Maintenance (IOM).

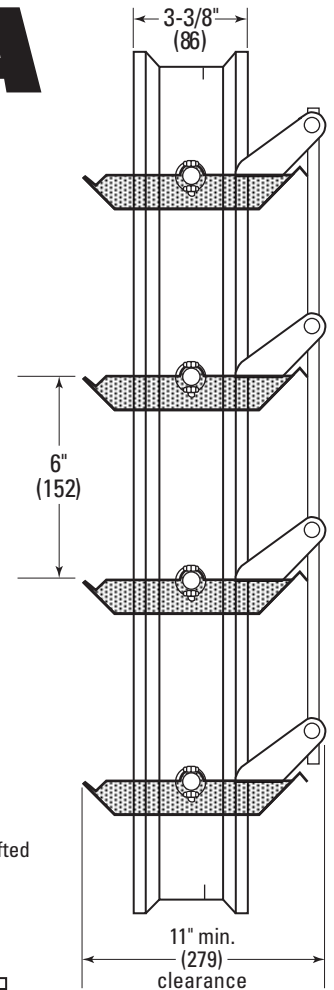
Tag: _____ Engineer: _____
 Project: _____ Contractor: _____
 Location: _____ Architect: _____
 Date: _____ Submitted by: _____



Model PBD-100-INS
 Parallel Insulated Blade Control
 Damper with External Linkage

Application:

The PBD-100-INS is a parallel insulated blade control damper with external, in the airstream linkage designed to allow for servicing in the field. The PBD-100-INS is a versatile control damper in that it can be manufactured using many different gauge metals as well as materials. The insulated blades help deter the transfer of temperature across the face of the damper when the blades are fully closed. This is beneficial when energy efficiency or condensation is a concern.



Standard Construction:

FRAME: 3-3/8" X 5/8" (86 x 16) x 16 gauge rollformed galvanized steel hat section with welded corners.

BLADES: 16 gauge galvanized 1 side. 20 gauge galvanized opposite side, on 6" (152) centers.

BEARINGS: Permanently lubricated oilite bronze, press fit into frame.

INSULATION: 1" (25) thick, 1-1/2 lb. per cubic foot.

AXLES: 1/2" (13) dia. plated steel.

LINKAGE: Commercial grade, brass pivots, machine riveted to blade.

LINKAGE TIE ROD: 1/4" (6) dia. plated steel.

JACKSHAFT: 1/2" (13) diameter standard on multi sections up to 96"h x 72"w (2438 x 1829).

FINISH: Mill galvanized.

BLADE SEALS: Vinyl.

JAMB SEALS: Stainless Steel.

MINIMUM DAMPER SIZE:

Single Blade - 6"w x 8"h (152 x 203)

Multi-Blade - 6"w x 12"h (152 x 305)

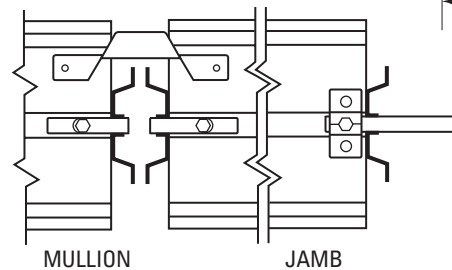
MAXIMUM DAMPER SIZE:

Single Section - 48"w x 72"h (1,219 x 1,828)

Multi-Section - Unlimited

Note:

Units wider than 32" (813) will be jackshafted and the clearance required for frame, blades and bearing bracket will be approximately 13" (330).



RATINGS		
DAMPER WIDTH	MAX. PRESSURE	MAX. VELOCITY
12" (305)	5" WC	3000 FPM
24" (610)	5" WC	3000 FPM
36" (914)	4" WC	2500 FPM
48" (1219)	2.5" WC	2000 FPM

Optional Construction:

Frame Material:

- 14 Gauge galvanized steel
- 12 Gauge galvanized steel
- 16 Gauge 304 Stainless Steel
- 16 Gauge 316 Stainless Steel
- .080 Aluminum

Blade Material:

- 14 Gauge galvanized steel
- 12 Gauge galvanized steel
- 16 Gauge 304 Stainless Steel
- 16 Gauge 316 Stainless Steel
- .080 Aluminum

Optional Construction (contd.):

Seals:

- Vinyl Blade & Flexible Stainless Steel Jamb Seals
- Stainless Steel Blade Seals & Flexible Stainless Jamb Seals

Operators:

- Actuators: Pneumatic or Electric: 24V 120V
- Manual Quadrant
- Pull Chain

Epoxy Coating

Face & Bypass:

- Right Angle & Straight Line Mixing Dampers

All dimensions shown in inches, parentheses () indicate millimeters.

Tag: Engineer:
 Project: Contractor:
 Location: Architect:
 Date: Submitted by:



Model PBD-100RM
 True Round Parallel Multi-Blade
 Control Damper with External Linkage

Application:

The PBD-100RM is a true round parallel multi-blade control damper with external, in the airstream linkage designed to allow for servicing in the field. The PBD-100RM is a versatile control damper in that it can be manufactured using many different gauge metals as well as materials.



Standard Construction:

- FRAME:** 2" (51) x 12 ga. galvanized steel rolled and welded.
- BLADES:** 16 ga. galvanized steel.
- BEARINGS:** Permanently lubricated oilite bronze, press fit into frame.
- AXLES:** 1/2" (13) dia. plated steel.
- LINKAGE:** Commercial grade, brass pivots, machine riveted to blade.
- LINKAGE TIE ROD:** 1/4" (6) dia. plated steel.
- OPERATOR SHAFT:** 6" x 1/2" (152 x 13) dia. plated steel.
- FINISH:** Mill galvanized.
- MINIMUM SIZE:** 14" (356)
- MAXIMUM SIZE:** 40" (1,016)

All dimensions shown in inches, parentheses () indicate millimeters.

Options:

Seals:

- Vinyl Blade & Flexible Stainless Steel Jamb Seals
- Stainless Steel Blade Seals & Flexible Stainless Jamb Seals

Operators:

- Actuators: Pneumatic or Electric: 24V 120V
- Manual Quadrant
- Pull Chain

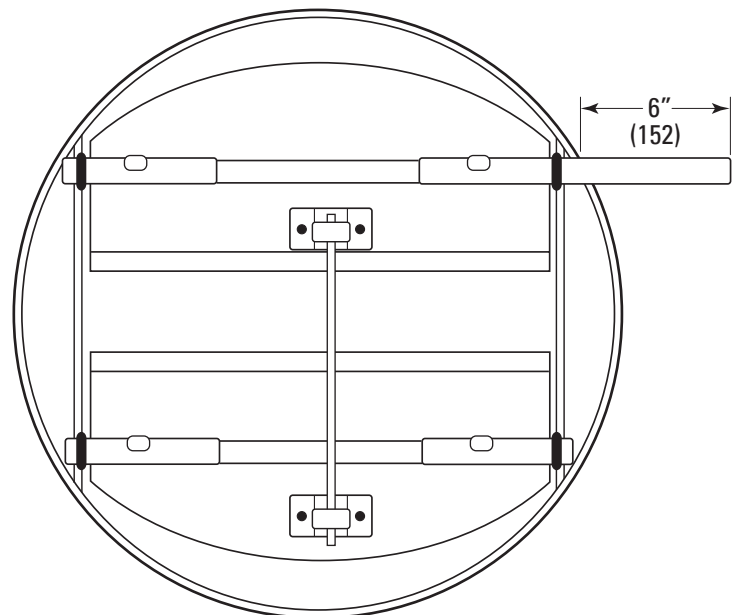
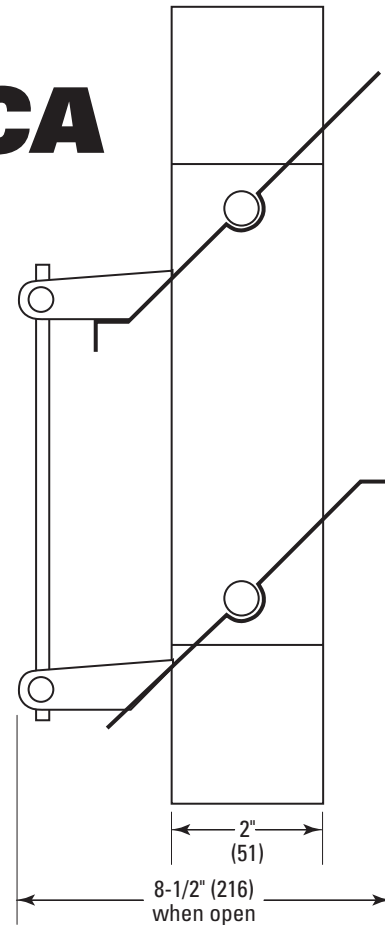
Epoxy Coating

Face & Bypass:

- Right Angle & Straight Line Mixing Dampers

Material:

- Stainless Steel Type 304
- .080 Aluminum



Tag: Engineer:
 Project: Contractor:
 Location: Architect:
 Date: Submitted by:



Model PBD-100RS

True Round Control Damper



Application:

The PBD-100RS is a true round control damper with optional polyurethane blade seals for low to medium pressure and velocity applications. The PBD-100RS can be manufactured in a variety of materials including stainless steel and aluminum.

Standard Construction:

FRAME: 8" (203) long sleeve, 20 ga. galvanized to 20" (508)

18 ga. to 36" (914) round.

BLADES: 16 ga. galvanized steel.

BEARINGS: Permanently lubricated oilite bronze, press fit into frame.

AXLES: 1/2" (13) dia. plated steel.

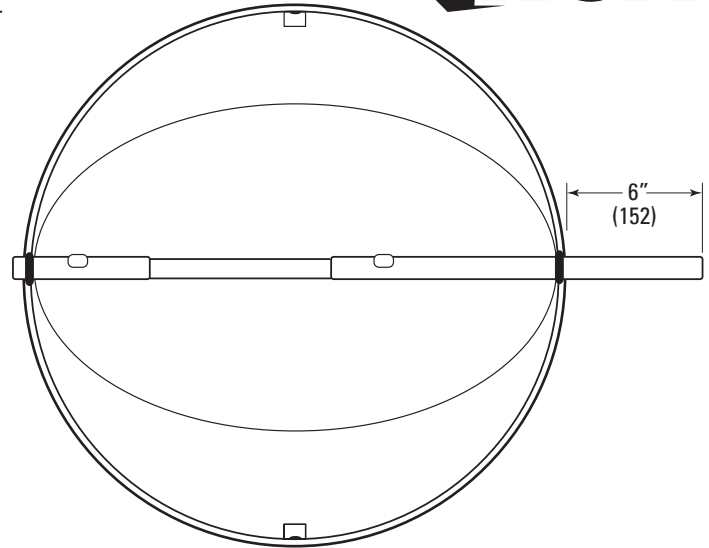
OPERATOR SHAFT: 6" x 1/2" (152 x 13) dia. plated steel.

FINISH: Mill galvanized.

MINIMUM SIZE: 6" (156)

MAXIMUM SIZE: 36" (914)

Blade stop(s) provided.



Optional Construction:

Seals:

Polyurethane foam blade seals

Operators:

Actuators: Pneumatic or Electric: 24V 120V

Manual Quadrant

Pull Chain

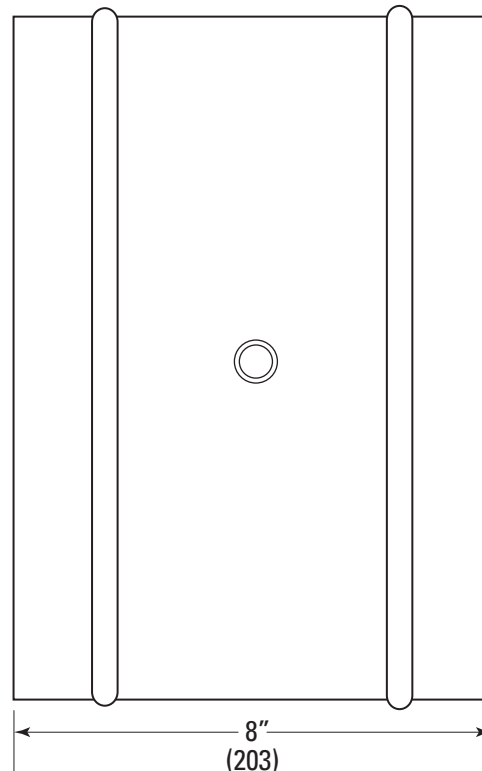
Epoxy Coating

Material:

304 Stainless Steel

316 Stainless Steel

.080 Aluminum



All dimensions shown in inches, parentheses () indicate millimeters.

Tag: _____ Engineer: _____
 Project: _____ Contractor: _____
 Location: _____ Architect: _____
 Date: _____ Submitted by: _____



Application:

The ZMD-3V is a steel constructed multiple zone control damper with 3V type blades. The ZMD-3V can be fabricated in numerous zone damper configurations as needed to fit individual applications.

Standard Construction:

- FRAME:** 6" (152) x 1" (25.4) x 16 ga. galv. steel channel
- BLADES:** 5.25" (133) x 16 ga. roll formed triple-vee profile galv. steel
- BEARINGS:** Synthetic, pressed into frame
- JAMB SEALS:** Stainless steel, compressible metal type
- BLADE SEALS:** Silicone, flexible wiper type
- ZONES:** Zones are divided into 6" height with built-in duct connectors
- AXELS:** 3/8" square plated steel, 6" centers
- LINKAGE:** 12 ga. steel, concealed in jamb
- FINISH:** Mill galvanized
- EXTENDED SHAFT:** Removable, 6" (152) x 1/2" (13) diameter plated steel
- MINIMUM SIZE:** A (1 or 2) and B is 6" (152)
- MAXIMUM WIDTH:** A (1 or 2) is 30" (762)
- MAXIMUM HEIGHT:** B is 96" (2438)

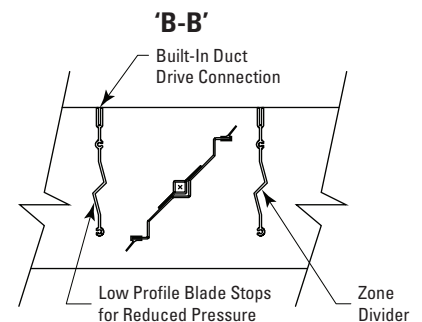
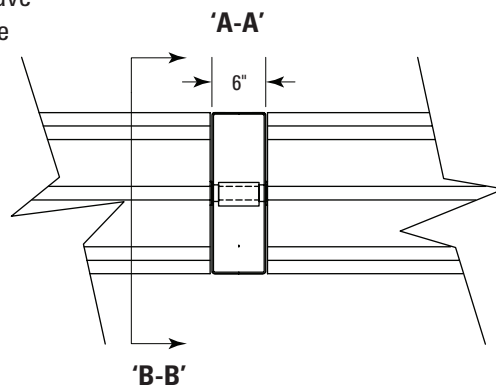
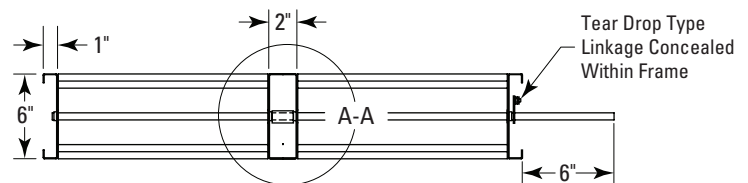
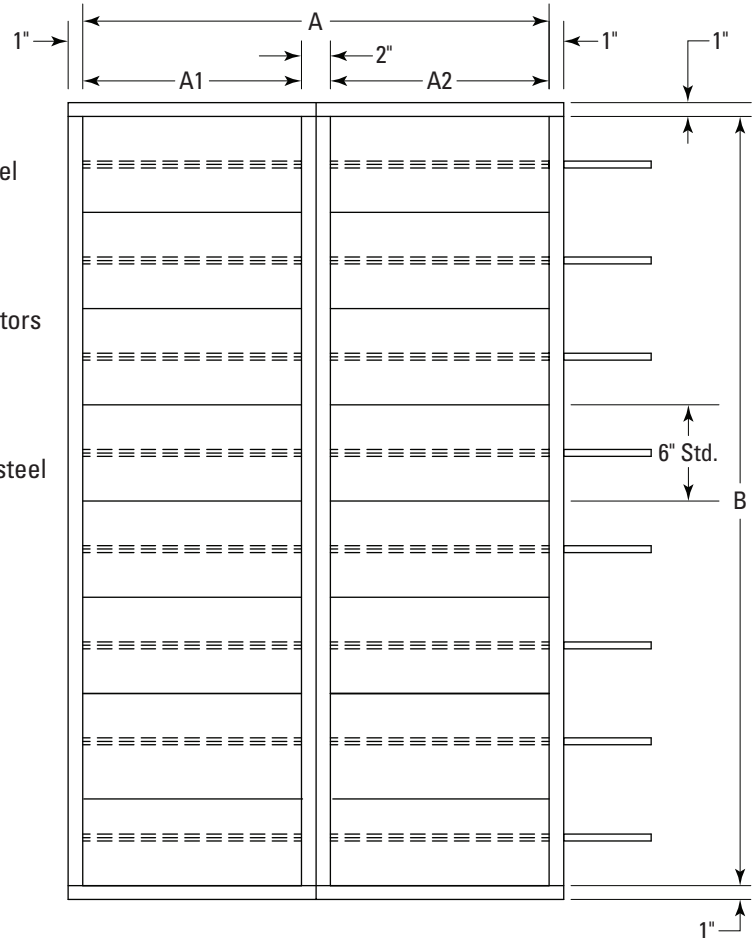
All dimensions shown in inches, parentheses () indicate millimeters.

Optional Construction:

- Bearings (Stainless steel pressed into frame)*
- Insulated Deck Divider*
- Standoff Bracket*

Features:

- Standard zone heights (B) are in multiples of 6.
- Special designed zone dividers allows for direct duct connections.
- Low profile zone dividers allows for low pressure loss.
- Variations of 4" , 5" and 7" increments are available at an additional cost, consult factory.
- The ZMD-3V series mixing Zone Dampers have factory arranged zones, when specified. The linkage will be set for groups of blades to work from one control shaft.
- When the size of the zone is unknown, the linkage will be removed in the field for zone sizing.
- Blade operation is parallel to insure lowest leakage.
- Leakage is less than 6 cfm/sq.ft. at 1"sp. wg.



Tag: _____ Engineer: _____
 Project: _____ Contractor: _____
 Location: _____ Architect: _____
 Date: _____ Submitted by: _____



Model ID & ID-SS

Iris Control Damper

Application:

The ID and ID-SS (Stainless Steel version) Iris Control Damper was designed for fast and accurate measurement, balance and control of airflow. The ID and ID-SS use interlocking plates and a calibrated control system to form an adjustable opening. By measuring the differential pressure across the included pressure ports, and referring to the matching performance curves in this submittal (see page 3), airflow can be precisely determined.

Some popular applications for the ID and ID-SS are office buildings, pharmaceuticals, clean room environments and laboratories. The Iris damper also saves time and money in the installation and commissioning stages.

Standard Construction:

The ID and ID-SS dampers are comprised of a casing, damper blades, an adjustment or regulating nut, and airflow adjustment chart and airflow ports.

MODEL ID: Blades and casing are made of galvanized steel

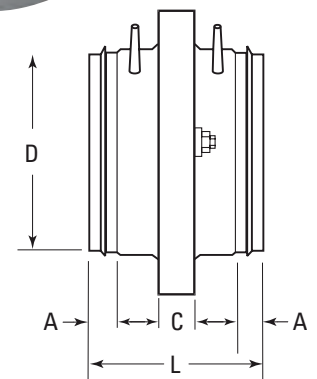
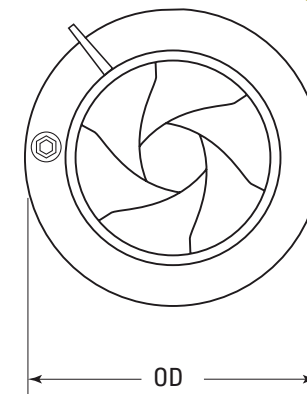
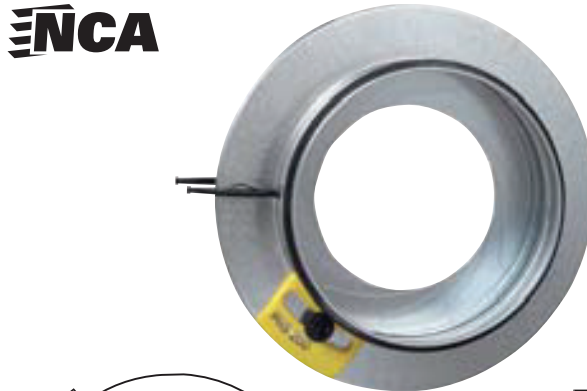
MODEL ID-SS: Blades and casing are made of stainless steel

All other components of the ID and ID-SS are made of high strength plastics.

AVAILABLE DAMPER SIZES:

4", 5", 6", 8", 10", 12", 14", 16", 20", 25", 32"

(102, 127, 152, 203, 254, 305, 356, 406, 508, 635, 813 mm)

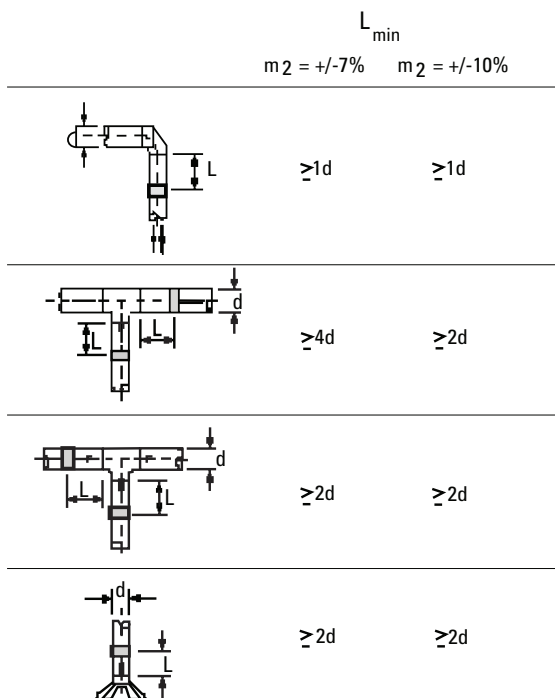


DIMENSIONS IN INCHES*

MODEL**	A	C	D	L	OD	WT (lbs)
ID-04	1.2	0.6	3.9	4.6	6.5	1.1
ID-05	1.2	0.6	4.9	4.6	7.4	1.5
ID-06	1.2	0.6	5.9	4.6	9.1	2.0
ID-08	1.2	0.6	7.8	4.6	11.2	3.1
ID-10	1.6	0.7	9.8	5.3	13.2	4.6
ID-12	1.6	0.7	11.8	6.1	16.1	7.7
ID-16	2.4	0.8	15.7	7.5	20.7	14.1
ID-20	2.0	0.8	19.6	6.7	25.8	21.2
ID-25	2.0	0.9	24.7	6.7	32.1	34.4
ID-32	3.9	0.9	31.4	10.6	40.0	55.1

*Do not use for construction Consult factory for certified prints

**Dimensions are the same for the ID-SS



Recommended Installation:

When the ID or ID-SS is installed near duct fittings, measurement accuracy may be affected. For optimum operation and airflow control, the diagrams to the left indicate the recommended distances between the Iris damper and duct elbows, tees and transitions. To achieve the airflow accuracy (m_2), the distance (L_{min}) is portrayed as the number of duct diameters from the fitting.



Iris Damper Specification Guide

1.0 - GENERAL

- A. Iris dampers shall be model ID, as manufactured by NCA Mfg., of Marion, NC, and of the size and capacity as indicated on the drawings and damper schedule.

2.0 - DAMPER CONSTRUCTION

- A. Iris dampers shall be manufactured of hot dipped galvanized 22 gage steel.
- B. Duct connections shall be gasketed and beaded to provide for a sealed duct connection.
- C. Airflow measurement taps shall be provided with airflow adjustment charts located on the damper for convenient airflow measurement and control. Damper shall be capable of controlling airflow to +/- 5% of design flow in a straight duct.
- D. Damper position shall be set with the factory supplied spanner wrench, with no zero calibration required. Dampers requiring zero calibration are not acceptable.
- E. Casing leakage to the environment shall not exceed 6 cfm.

Iris Stainless Steel Damper Specification Guide

1.0 - GENERAL

- A. Iris dampers shall be model ID-SS, as manufactured by NCA Mfg., of Marion, NC, and of the size and capacity as indicated on the drawings and damper schedule.

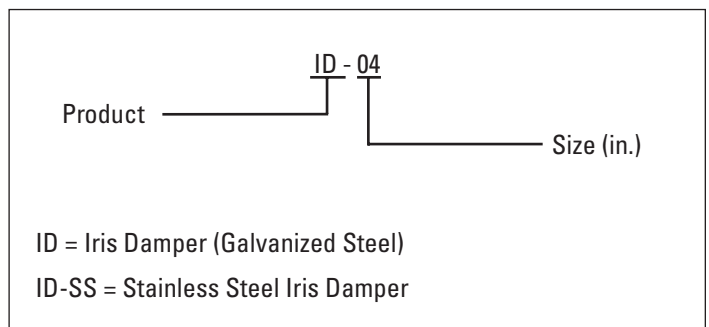
2.0 - DAMPER CONSTRUCTION

- A. Iris dampers shall be manufactured of 316 acid proof stainless steel.
- B. Duct connections shall be gasketed and beaded to provide for a sealed duct connection.
- C. Airflow measurement taps shall be provided with airflow adjustment charts located on the damper for convenient airflow measurement and control. Damper shall be capable of controlling airflow to +/- 5% of design flow in a straight duct.
- D. Damper position shall be set with the factory supplied spanner wrench, with no zero calibration required. Dampers requiring zero calibration are not acceptable.
- E. Casing leakage to the environment shall not exceed 6 cfm.

MATERIAL SPECIFICATIONS

Product Components	Material
Casing, blades	Galvanized steel (Model ID) or acid-proof steel (Model ID-SS)(AISI 316)
Regulation mechanism	Polyacetal
Stickers, window cover	PVC plastic
Veloduct-sealing	EPDM rubber
Measuring tap	TRP Plastic

ORDERING SPECIFICATIONS





Selection

The criteria to be considered when applying an Iris damper are airflow, pressure drop and sound requirements. The Iris damper represents a resistance to airflow in a duct, as do the duct and fittings.

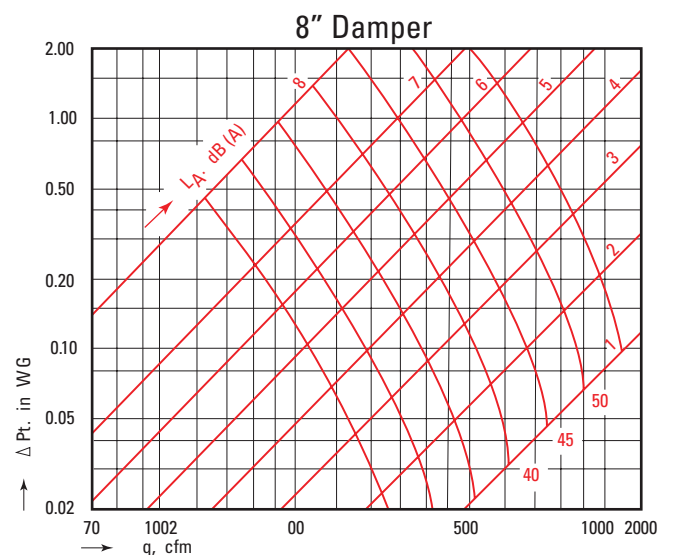
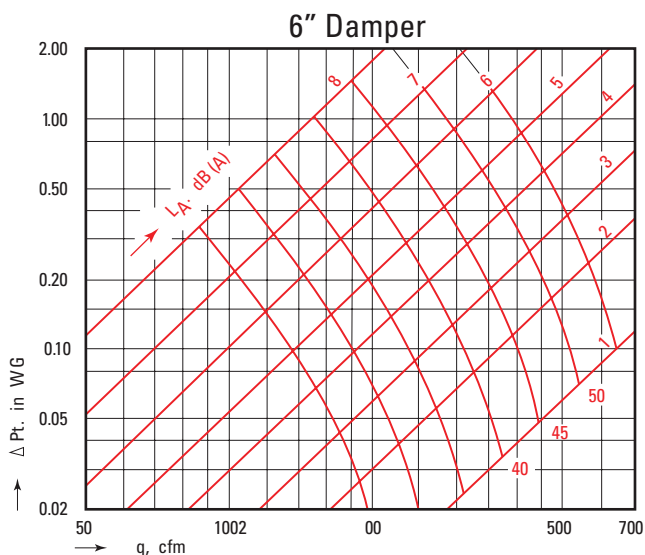
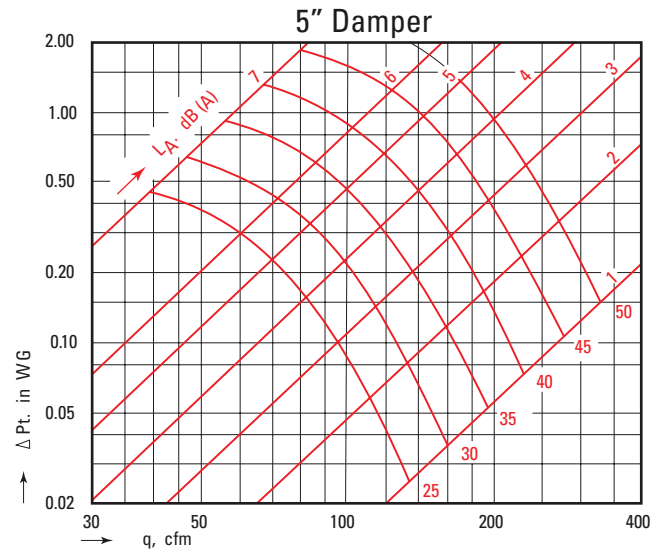
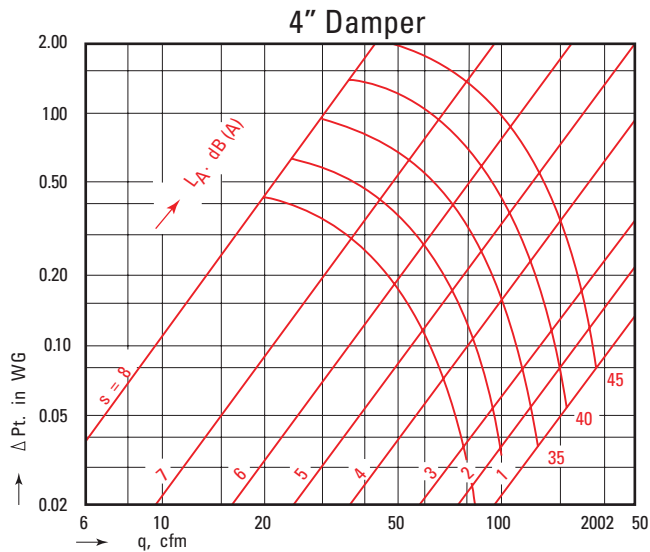
Selecting an Iris damper is simple. In the case of an existing duct, choose an Iris damper to match duct size.

Alternatively, use the Iris Damper Selection Curves on pages 3 and 4 of this document. Select an Iris damper at a mid-range setting to match desired airflow and pressure drop. This establishes the required duct size. Additionally, this provides the end user with balancing flexibility in the event that airflow requirements should change.

Consideration of the total pressure drop and sound requirements at design airflow is important. The Selection Curves indicate the total pressure drop of an Iris damper at a given airflow and damper position.

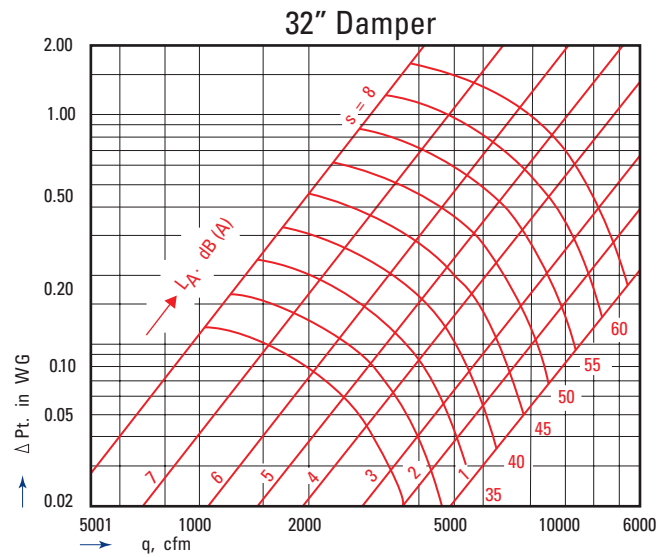
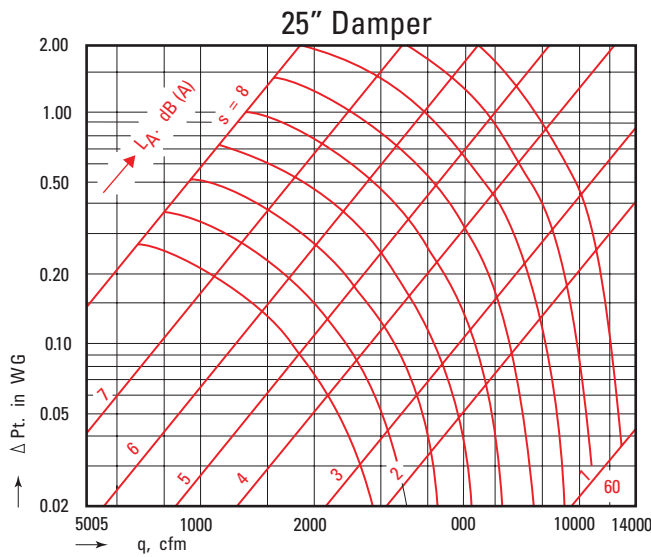
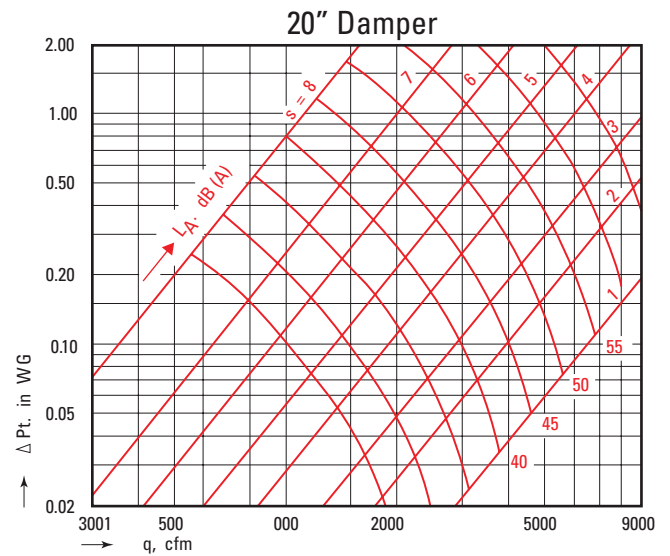
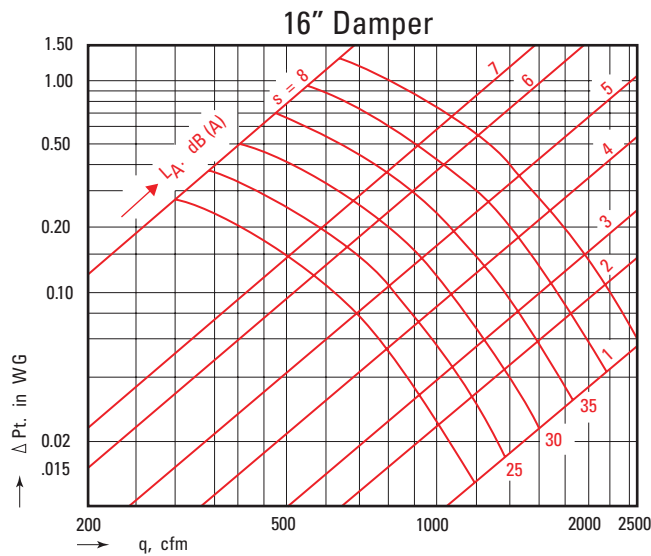
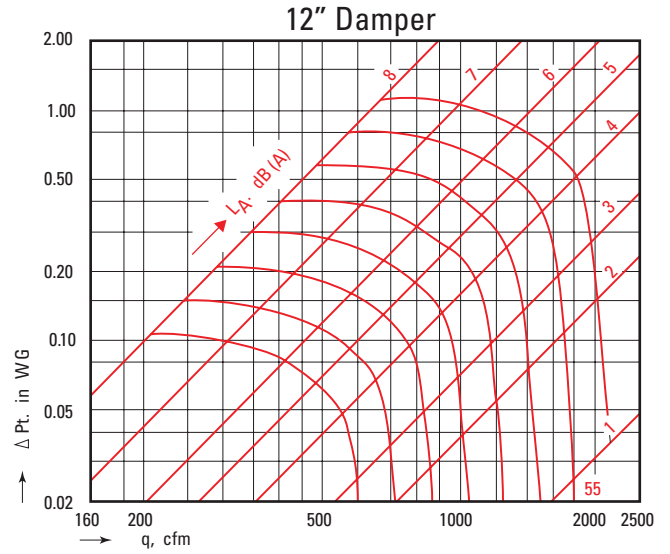
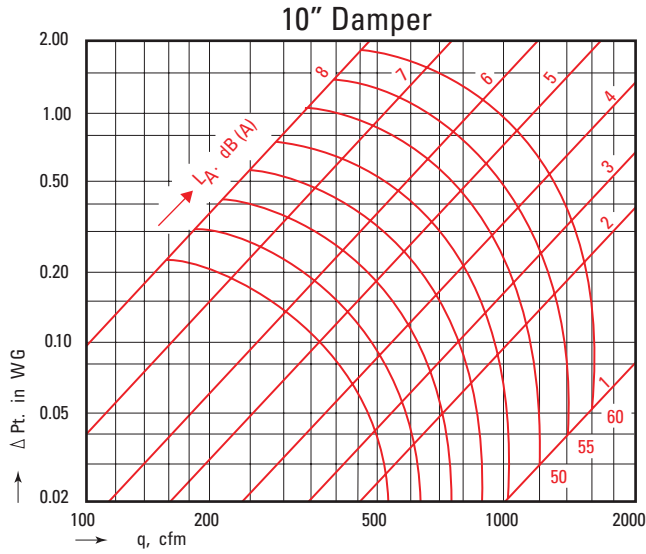
Additionally, sound pressure curves across various damper settings are provided. L_A is the sound pressure level with 4 dB room attenuation.

Iris Damper Selection Curves





Iris Damper Selection Curves (contd.)



Airflow Control and Balance

Once an Iris damper has been installed and the system is operational, the damper may be adjusted to deliver required airflow using the airflow adjustment chart located on the damper. Airflow Adjustment Charts for ID and ID-SS dampers are shown on pages 5 and 6 of this document.

Each Iris damper contains two airflow taps (pressure ports) and an Airflow Adjustment Chart. By connecting a pressure gauge to the taps of the damper, the pressure drop across the damper blades can be measured. The illustration (Fig. 1) shows the setup for making a pressure measurement.

Each damper setting has a unique 'k' factor that defines the curves at different damper settings. The air velocity flowing through the orifice of the damper is proportional to the measured pressure drop. Once the velocity is known, the airflow can be easily calculated when the cross-sectional area of the orifice is known. The relationship between pressure drop and airflow through an Iris damper is:

$$q = K \sqrt{\Delta p_m}$$

$$q = \text{airflow (cfm)}$$

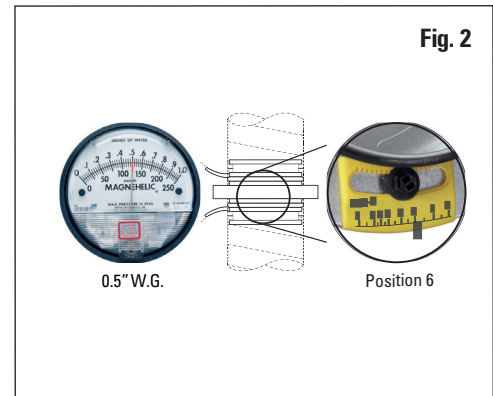
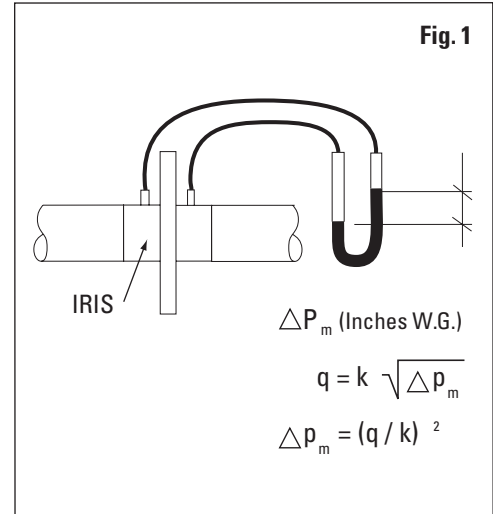
$$\Delta p_m = \text{measured pressure drop (in. w.g.)}$$

$$k = \text{constant of proportionality}$$

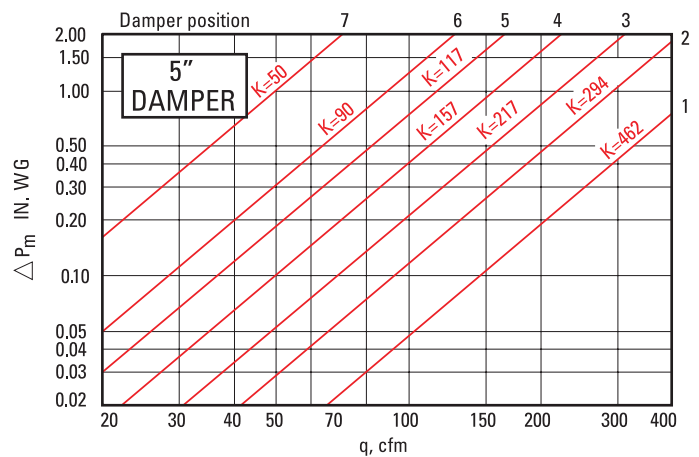
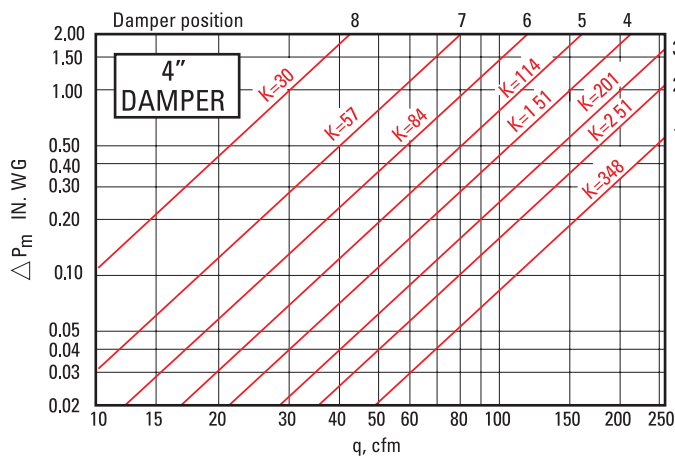
(dependent on the orifice area)

For initial airflow balance, note the damper position and related pressure drop. Refer to the Airflow Adjustment Charts to determine the airflow.

To adjust to a new airflow, locate the desired airflow on the Airflow Adjustment Chart and adjust the damper position until the required pressure drop is achieved (Fig. 2).



Airflow Adjustment Charts





Model ID and ID-SS Iris Control Damper

