BC 2.1

BETEC CAD.

Motorized Volume Control Dampers

MCD-GB-21A

Selected Products of the company have been Classified / Listed / Tested by various international testing authorities.

Globally Recognized. Industry Respected.

Table Of Contents

Motorized Volume Control Damper - MCD

BETEC CAD manufactures high quality Motorized volume control dampers, specially designed for use in **HVAC** Heating Ventilating and Air conditioning systems for volume, flow and pressure control of air within the ducts.

The light, medium and heavy duty construction of **MCD's** allow even distribution and flow control of air at high duct pressures and are suitable for various type of **HVAC** applications.

Blade operation, either parallel or opposed in operation fitted with tip seals to ensure minimum air leakage through the blades.

Motorized Volume Control Damper

Standard Types and Models							
Product	**Series**	**Model / Specification**		**Material**		**Blade Operation**	**Construction**
				Frame	**Blade**		
MCD	B - 20	21	Single Skin	G*,S	G*, S	A/B/C	Normal
		22	Double Skin	G*,A,S	G, A*,S	A/B/C	
	B - 40	41	Single Skin	G*,S	G*, S	A/B	Heavy Duty
		42	Double Skin	G*,S	G*, S	A/B	

Material Details
All types and models of motorized volume control dampers are available in Galvanized Steel, Stainless Steel & Aluminium according to the design and application.

Sheet Metal Galvanized Steel (GI)
Zinc coating Z-22 to Z-27 as per **ASTM-A653** Standards.

Sheet Metal Aluminium (AL)
Aluminium Sheet as per Alloy **A1100** Standards.
Extruded aluminium as per Alloy **6063 A** Standards.

Sheet Metal Stainless Steel (SS)
Stainless steel **304 / 316L.**

Applications:

GI Construction : For **HVAC** commercial, residential etc.
AL Construction : For Hospitals,Labs,Green Building etc.
SS Construction : For Offshore , Oil & Gas etc.

The respective alphabet indicates the type of material
G - Galvanized steel **(GI)**
S - Stainless steel **(SS)**
A - Aluminum **(AL)**

Alphabet indicates the type of blade operation
A - Parallel Blade.
B - Opposed Blade.
C - Gear Opposed Blade.

BETEC CAD. **MCD's are manufactured as per international standards and confirmed to NFPA 90 A and UL 181 standards for erosion.**

Note:
***** Indicates ***BETEC CAD's*** **Standard** Construction.
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Motorized Volume Control Damper - MCD

BETEC CAD.'s Motorized volume control dampers are offered with either parallel or opposed blade operation. Each style has distinguishing characteristics with regard to the type of operation.

Blade Operation

Parallel blade operation-'A'

Parallel blade damper are constructed so all the blades move in the same direction and in parallel. Parallel blade orientation is typically used when the damper operates in two positions open and close.

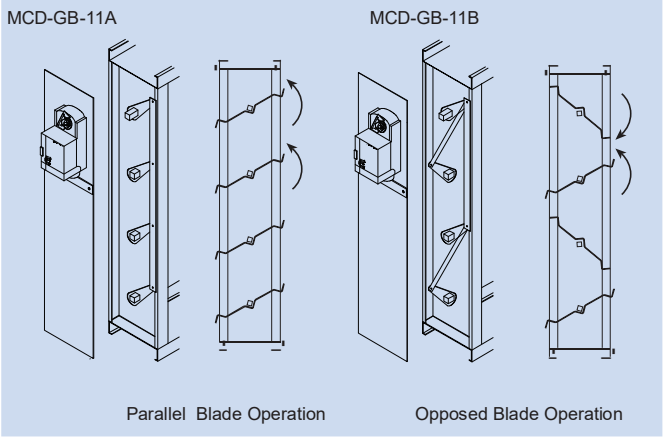
Opposed blade operation-'B'

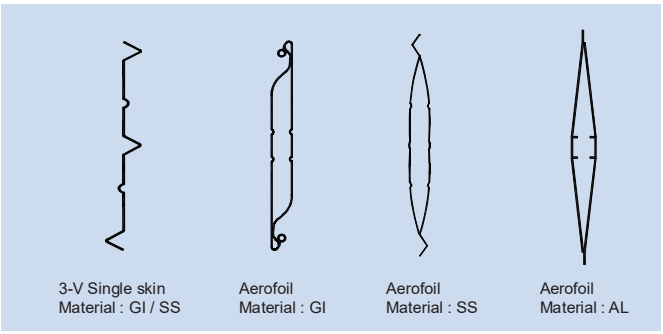
Opposed blade dampers are constructed so blades next to each other move in opposite direction. Opposed blade configuration is typically used on dampers that modulate airflow.

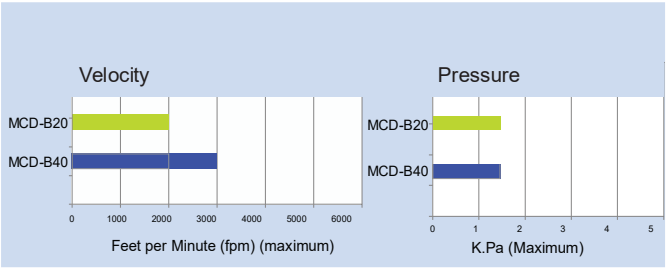
Blade Type

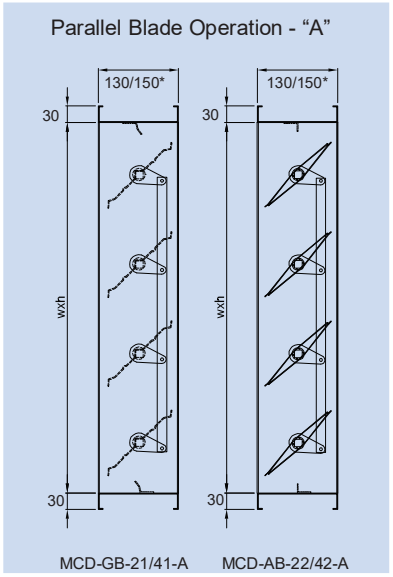
'1' - 3V - Single skin blades are formed from a single thickness galvanized or stainless steel, incorporating three longitudinal V-Type grooves running the full length of the blade to increase strength. This blade is designed for low to medium, velocity and pressure applications.

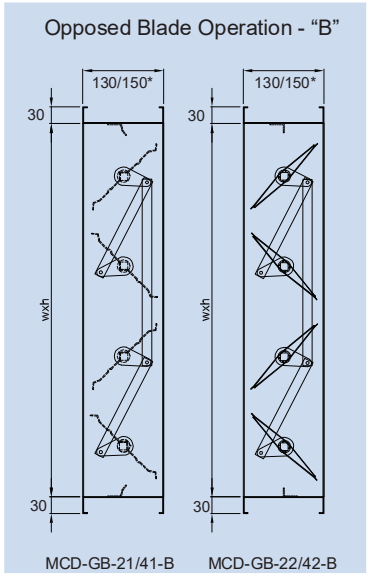
'2' - Aerofoil - Double skin blades are formed of double-skin galvanized steel, stainless steel or extruded aluminum. This blade design results in lower resistance to airflow and increased strength that is typically used in high pressure systems.

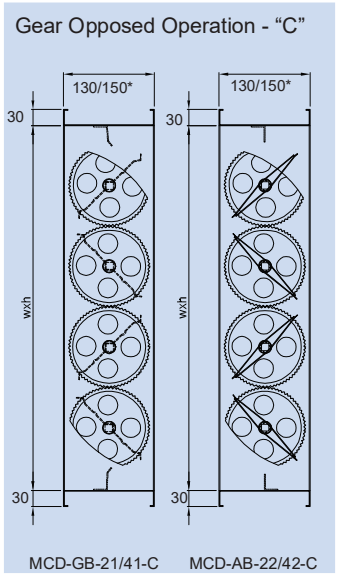


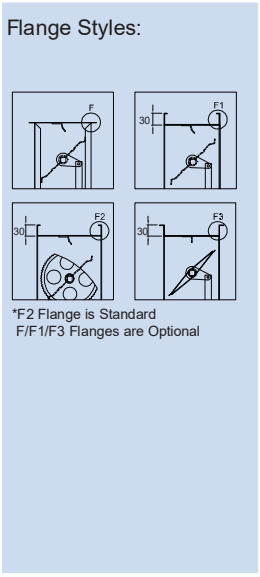












Note: * Indicates ***BETEC CAD's* Standard** Construction.

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Motorized Volume Control Damper - MCD; Low Leakage Application B-20 Series

Type: Square and Rectangular
Model: MCD-GB-21A
Blade Type : 3V Single Skin ; Galvanized Construction
Blade Operation:A-Parallel,B-Opposed,C-Gear Opposed

BETEC CAD. B-20 Series Motorized volume control dampers are square and rectangular type with parallel or opposed blade operation having single skin blade design. These dampers are subjected to medium pressure applications to achieve low leakage efficient operation.
The square and rectangular type **MCD**'s are designed for handling maximum air capacities at minimum pressure drop.

MCD-GB-21A

Damper Performance Ratings

Operating Pressure - 6" wg (1500 Pa.) Max.
Leakage - Class - I (Refer AMCA 500-D-12).
Velocity - 2000 fpm (10.1 m/s).

Standard Construction

Frame
6" x 1.18" x 18 gauge (150 x 30 x 1.2 mm) thick roll formed galvanized steel 'C' channel.
Blades
6" (152 mm) wide, 1.2 mm (18 gauge) thick galvanized steel 3V type roll formed.
Bushes
Bronze.
Mechanical Linkage
Galvanized steel linkages concealed in the frame.
Axles
12 mm square galvanized steel.
Gasket
Neoprene / foam gasket / Silicone Rubber Gasket*.
Jamb Seal
0.3 mm thick stainless spring steel
Actuator
Siemens (On / Off type 24V AC / 230V AC)

Optional Fittings

Gear Wheel
Gear wheels are of heat resistant Nylon placed within the frame instead of mechanical linkage for rattle free smooth operation.
Bushes
Brass / Nylon.
Axles
12 mm diameter galvanized steel.
Transitions
Neck adaptor for round duct connections.
Actuator
Honeywell /Belimo/Sauter (24V AC / 230V AC)

B-20 Series Single Skin Blade Model Details				
Material Construction				
Model	Frame		Blade	
	Material	Thick	Material	Thick
MCD-GB-21A/B*/C	GI	1.2 mm	GI	1.2 mm
MCD-GSB-21A/B/C	GI	1.2 mm	SS	1.2 mm
MCD-SB-21A/B/C	SS	1.2 mm	SS	1.2 mm

Alphabet indicates the type of blade operation
A - Parallel Blade
B - Opposed Blade
C - Gear Opposed Blade

Optional Construction

Frame : Thickness up to 1.5 mm
Frame Depth : Up to 150 mm
Blade : Thickness up to 1.5 mm
Blade Width : Up to 150 mm
Frame and Blade Material : Stainless Steel (304/316L)

Any Combination of W x H											
MCD-GB-21A/B/C											
W- Inch	6"	8"	12"	16"	18"	20"	24"	28"	32"	36"	48"
H - Inch	6"	8"	12"	16"	18"	20"	24"	28"	32"	36"	40"

Note:
Increments of 2" (50 mm) possible with combination of 4"& 6" blade width.

Maximum single module size is 48"x40" (1200x1000 mm).

Damper, width W > 48" (1200 mm) or H > 40" (1000 mm), is provided with a center mullion partition.
Dampers of size W or H > 800 mm will have blade with stiffener.
* Indicates Betec Cad Models Certified by AMCA

Note :
Please contact ***BETEC CAD***. for customized design & additional information.
Selected Products of the company have been Classified / Listed / Tested by various international testing authorities.

Motorized Volume Control Damper - MCD; Low Leakage Application B-20 Series

Type: Square and Rectangular
Model: MCD-GAB-22A
Blade Type: Aerofoil ; Galvanized Construction
Blade Operation:A-Parallel,B-Opposed,C-Gear Opposed

BETEC CAD. B-20 Series Motorized volume control dampers are square and rectangular type with parallel or opposed blade operation having Aerofoil double skin blade design. These dampers are subjected to medium pressure applications to achieve low leakage and uniform air distribution.
The square and rectangular type **MCD's** are designed for handling maximum air capacities at minimum pressure drop.

MCD-GAB-22A

Damper Performance Ratings

Operating Pressure - 6" wg (1500 Pa.) Max.
Leakage - Class - I (Refer AMCA 500-D-12).
Velocity - 2000 fpm (10.1 m/s).

Standard Construction

Frame
6" x 1.18" x 18 gauge (150 x 30 x 1.2 mm) thick roll formed galvanized steel 'C' channel.
Blades
6" (152 mm) wide, 1 mm (18 gauge) thick extruded aluminium aerofoil type.
Bushes
Bronze.
Mechanical Linkage
Galvanized steel linkages concealed in the frame.
Axles
12 mm square galvanized steel.
Gasket
Neoprene / foam gasket / Silicone Rubber Gasket*.
Jamb Seal
0.3 mm thick stainless spring steel.
Actuator
Siemens (On / Off type 24V AC / 230V AC)

Optional Fittings

Gear Wheel
Gear wheels are of heat resistant Nylon placed within the frame instead of mechanical linkage for rattle free smooth operation.
Bushes
Brass / Nylon.
Axles
12 mm diameter galvanized steel.
Transitions
Neck adaptor for round duct connections.
Actuator
Honeywell /Belimo/Sauter (24V AC / 230V AC)

B-20 Series Aerofoil Blade Model Details				
Material Construction				
Model	Frame		Blade	
	Material	Thick	Material	Thick
MCD-GB-22A/B*	GI	1.2 mm	GI	0.7 mm
MCD-AB-22A/B/C	AL	1.2 mm	AL	1 mm
MCD-GAB-22A/B*/C	GI	1.2 mm	AL	1 mm
MCD-GSB-22A/B/C	GI	1.2 mm	SS	0.7 mm
MCD-SB-22A/B	SS	1.2 mm	SS	0.7 mm

Alphabet indicates the type of blade operation
A - Parallel Blade
B - Opposed Blade
C - Gear Opposed Blade.

Optional Construction

Frame : Thickness up to 1.5 mm
Frame Depth : Up to 150 mm
Blade : Thickness up to 0.9 mm
Blade Width : Up to 150 mm
Frame and Blade Material : Stainless Steel (304/316L)

Any Combination of W x H											
MCD-GB-22A/B/C											
W- Inch	6"	8"	12"	16"	18"	20"	24"	28"	32"	36"	48"
H - Inch	6"	8"	12"	16"	18"	20"	24"	28"	32"	36"	40"

Note:
IIncrements of 2" (50 mm) possible with combination of 4"& 6" blade width.

Maximum single module size is 48"x40" (1200x1000 mm).

Damper, width W > 48" (1200 mm) or H > 40" (1000 mm), is provided with a center mullion partition.
Dampers of size W or H > 800 mm will have blade with stiffener.
* Indicates Betec Cad Models Certified by AMCA

Note :
Please contact ***BETEC CAD***. for customized design & additional information.

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Motorized Volume Control Damper - MCD; Heavy Duty Application B-40 Series

Type: Square and Rectangular
Model: MCD - GB-41 A/B
Blade Type : 3V Single Skin; Galvanized Construction
Blade Operation : A-Parallel, B-Opposed

BETEC CAD B-40 Series Motorized Volume control dampers are square and rectangular type with both parallel blade operation and opposed blade operation with single skin blade design. These heavy duty dampers are used under high pressure and velocity conditions to achieve efficient and rattle free operation.

The square and rectangular type **MCD**'s are designed for handling maximum air capacities at minimum pressure drop.

MCD-GB-41B

Damper Performance Ratings

Pressure - 6" wg (1500 Pa.) Max.
Leakage - Class - II (Refer AMCA 500 D)
Velocity - 3000 fpm (15 m/s).

Standard Construction

Frame
6" x 1.18" x 16 gauge (150 x 30 x 1.5 mm) thick rollformed galvanized steel 'C' channel.
Blades
6" (150 mm) wide,1.5 mm (16 gauge) thick galvanized steel 3V type rollformed.
Bushes
Bronze.
Mechanical Linkage
Galvanized steel linkages concealed in the frame.
Axles
12 mm square galvanized steel.
Gasket
Neoprene / foam gasket /Silicone Rubber Gasket*.
Jamb Seal
0.3 mm thick stainless spring steel.
Actuator
Siemens (On / Off type 24V AC / 230V AC)

Optional Fittings

Bushes
Brass.
Flange Holes
Available customers request, please specify.
Transitions
Neck adaptor for round duct connections.
Actuator
Honeywell /Belimo/Sauter (24V AC / 230V AC)

B-40 Series Single Skin Blade Model Details				
Material Construction				
Model	Frame		Blade	
	Material	Thick	Material	Thick
MCD-GB-41A/B	GI	1.5 mm	GI	1.5 mm
MCD-GSB-41A/B	GI	1.5 mm	SS	1.5 mm
MCD-SB-41A/B	SS	1.5 mm	SS	1.5 mm

Alphabet indicates the type of blade operation
A - Parallel Blade.
B - Opposed Blade.

Optional Construction

Frame : Thickness up to 3 mm
Frame Depth : Up to 200 mm
Blade : Thickness up to 3 mm
Blade Width : Up to 150 mm
Frame and Blade Material : Stainless Steel (304/316L)

Any Combination of W x H											
MCD-GB-41A/B											
W- Inch	6"	8"	12"	16"	18"	20"	24"	28"	32"	36"	48"
H - Inch	6"	8"	12"	16"	18"	20"	24"	28"	32"	36"	40"

Note:
Increments of 2" (50 mm) possible with combination of 4"& 6" blade width.

Maximum single module size is 48"x40" (1200x1000 mm).

Damper, width W > 48" (1200 mm) or H > 40" (1000 mm), is provided with a center mullion partition.

Note :
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Motorized Volume Control Damper - MCD; Heavy Duty Application B-40 Series

Type: Square and Rectangular
Model: MCD - GB-42A
Blade Type: Aerofoil; Galvanized Construction
Blade Operation : A-Parallel, B-Opposed

BETEC CAD B-40 Series Motorized Volume control dampers are square and rectangular type with both parallel blade operation and opposed blade operation, double skin blade design. These heavy duty dampers are used under high pressure and velocity conditions to achieve efficient and rattle free operation.

The square and rectangular type **MCD**'s are designed for handling maximum air capacities at minimum pressure drop.

MCD-GB-42B

Damper Performance Ratings

Operating Pressure - 6" wg (1500 Pa.) Max.
Leakage - Class - II (Refer to AMCA 500 D)
Velocity - 3000 fpm (15 m/s).

Standard Construction

Frame
6" x 1.18" x 16 gauge (150 x 3 x 1.5 mm) thick rollformed galvanized steel 'C' channel.
Blades
6" (150 mm) wide, 0.9 mm (20 gauge) thick galvanized steel Aerofoil type rollformed.
Bushes
Bronze.
Mechanical Linkage
Galvanized steel linkages concealed in the frame.
Axles
12 mm square galvanized steel.
Gasket
Neoprene / foam gasket /Silicone Rubber Gasket*.
Jamb Seal
0.3 mm thick stainless spring steel.
Actuator
Siemens (On / Off type 24V AC / 230V AC)

Optional Fittings

Bushes
Brass.
Flange Holes
Available customers request, please specify.
Transitions
Neck adaptor for round duct connections.
Actuator
Honeywell /Belimo/Sauter (24V AC / 230V AC)

B- 40 Series Aerofoil Blade Model Details				
Material Construction				
Model	Frame		Blade	
	Material	Thick	Material	Thick
MCD-GB-42A/B	GI	1.5 mm	GI	0.9 mm
MCD-GSB-42A/B	GI	1.5 mm	SS	0.9 mm
MCD-SB-42A/B	SS	1.5 mm	SS	0.9 mm

Alphabet indicates the type of blade operation
A - Parallel Blade.
B - Opposed Blade.

Optional Construction

Frame : Thickness up to 3 mm
Frame Depth : Up to 200 mm
Blade : Thickness up to 2 mm
Blade Width : Up to 150 mm
Frame and Blade Material : Stainless Steel (304/316L)

Any Combination of W x H											
MCD-GB-42A/B											
W- Inch	6"	8"	12"	16"	18"	20"	24"	28"	32"	36"	48"
H - Inch	6"	8"	12"	16"	18"	20"	24"	28"	32"	36"	40"

Note:
Increments of 2" (50 mm) possible with combination of 4"& 6" blade width.

Maximum single module size is 48"x40" (1200x1000 mm).

Damper, width W > 48" (1200 mm) or H > 40" (1000 mm), is provided with a center mullion partition.

Note :
Please contact ***BETEC CAD***. for customized design & additional information.

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Engineering And Performance Data - MCD

B - 20 Series

Pressure drop for Motorized Control Dampers

Single Skin Blade : MCD B 21/41
Aerofoil Blade : MCD B 22/42
AIR PERFORMANCE

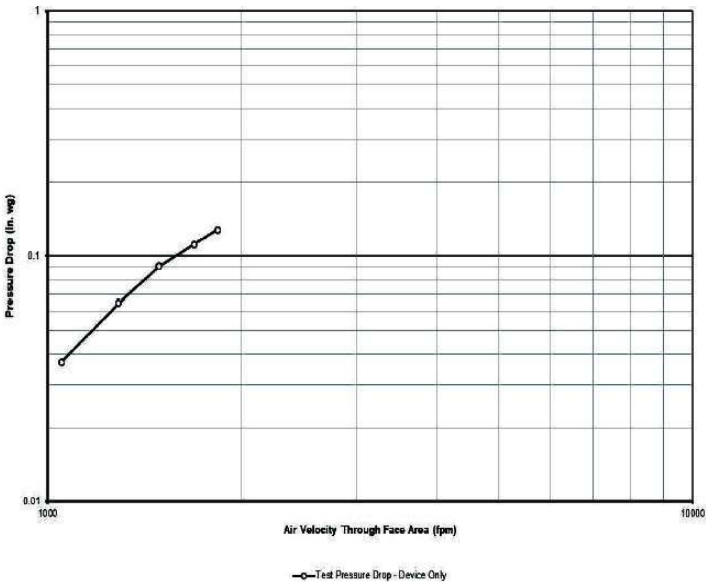
• Tested for air performance at standard air density in accordance with ANSI/AMCA 500-D,Figure 5.3

• Data are based on a torque of 24 in-lb/ft2 applied to close and seat the damper during the test.

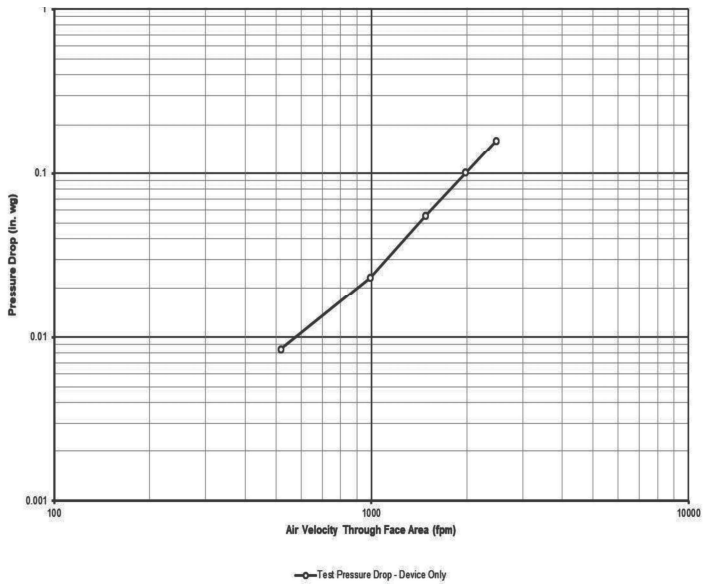
Motorized Control Damper

Pressure Loss Vs Face Velocity
Pressure Drop For Models MCD - B 20/40 Series.

SIZE 12" X12"		SIZE 24" X 24"		SIZE 12" X 48"		SIZE 48" X 12"	
Air Velocity (fpm)	Pressure Drop (in. wg)	Air Velocity (fpm)	Pressure Drop (in. wg)	Air Velocity (fpm)	Pressure Drop (in. wg)	Air Velocity (fpm)	Pressure Drop (in. wg)
1100	0.04	520	0.008	520	0.01	520	0.007
1400	0.07	1000	0.02	1000	0.04	1000	0.02
1600	0.09	1600	0.06	1500	0.08	1600	0.05
1800	0.12	2000	0.1	2000	0.14	2000	0.09
1900	0.14	2600	0.18	2600	0.22	2600	0.14



SIZE 12" X 12"



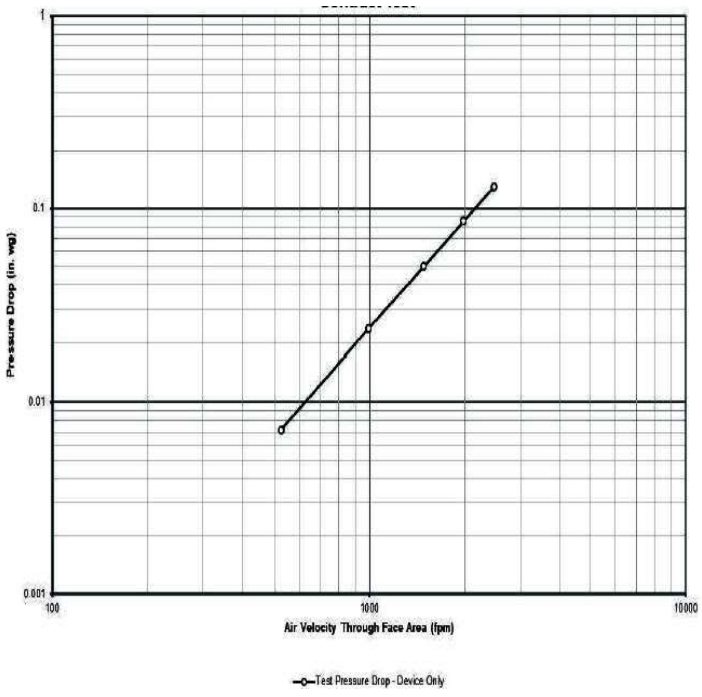
SIZE 24" X 24"

Selected Products of the company have been Classified / Listed / Tested by various international testing authorities.

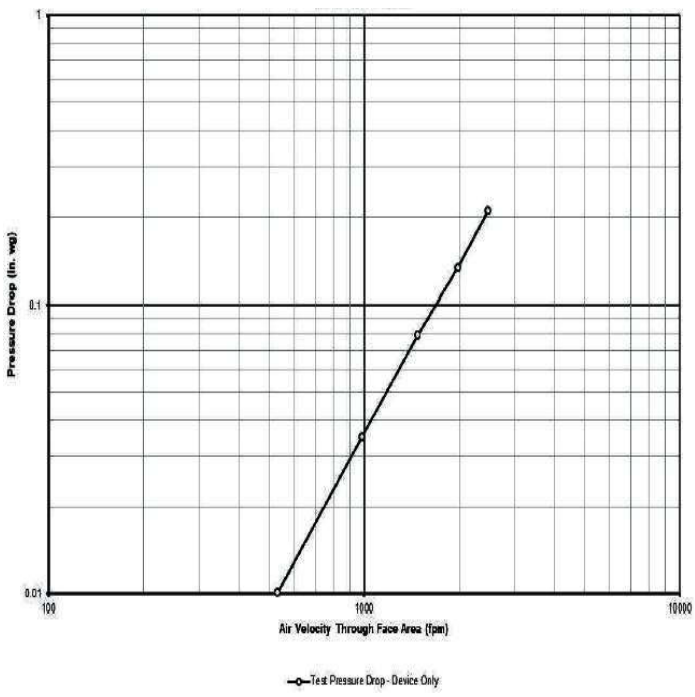
Engineering And Performance Data - VCD

B -20 Series

Pressure drop for Motorized Control Dampers



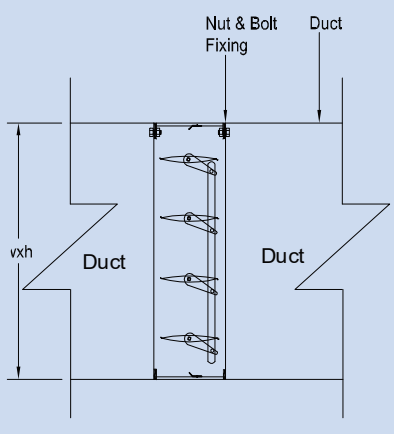
SIZE 48" X 12"



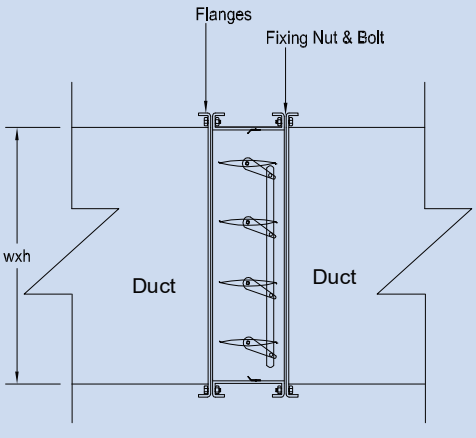
SIZE 12" X 48"

Note: MCD-B-20/40 Series Class - I Leakage type available on request.

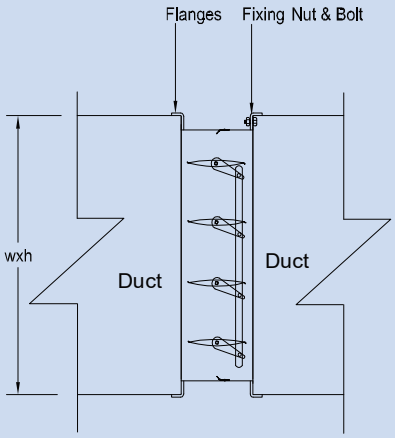
Installation Details



MCD-B-20
with "F" Frame Installation



MCD-B-20/40
with "F1"/"F2" Frame Installation



MCD-B-20
with "F3" Frame Installation

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Engineering And Performance Data - MCD

B -20 Series

Leakage Characteristics for Motorized Control Dampers

Models MCD - B 20/40 - Leakage Curve (Blades 100% Closed Position)

AIR LEAKAGE

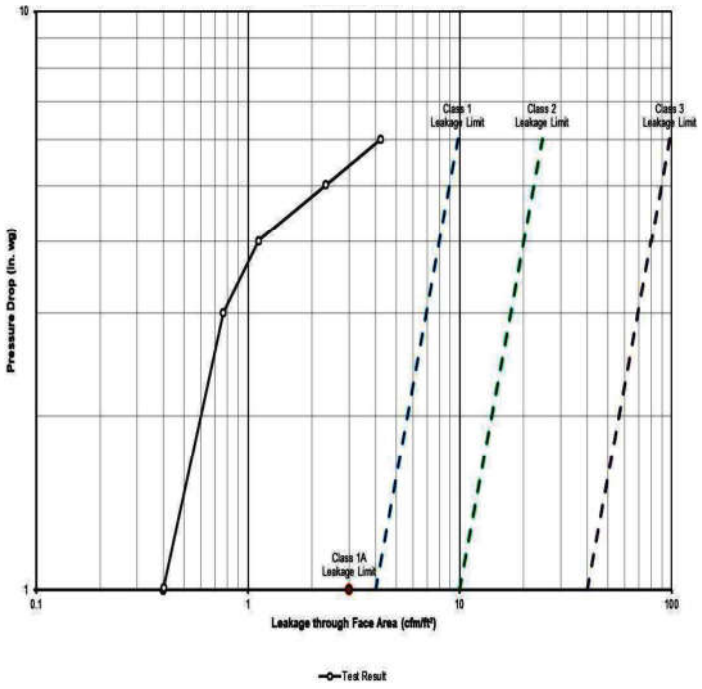
• Air leakage is based on operation between 32 °F and 120 °F

• Tested for air leakage at standard air density in accordance with ANSI/AMCA Standard 500-D,Figure 5.4

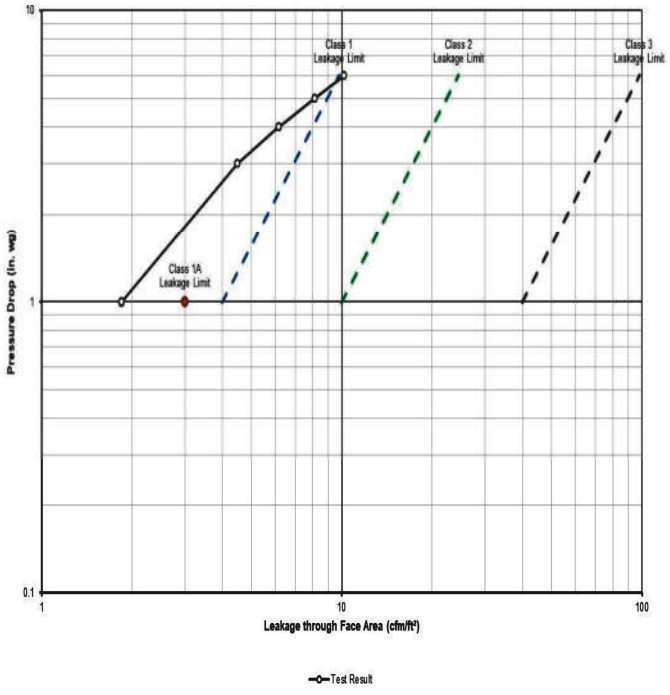
• Data are based on a torque of 24 in-lb/ft2 applied to close and seat the damper during the test.

Maximum Allowable Leakge, cfm/ft²				
Class	at 1 in.wg	at 4 in.wg	at 6 in.wg	at 8 in.wg
1A	3	N/A	N/A	N/A
1	4	8	10	11
2	10	20	24	28
3	40	80	98	112

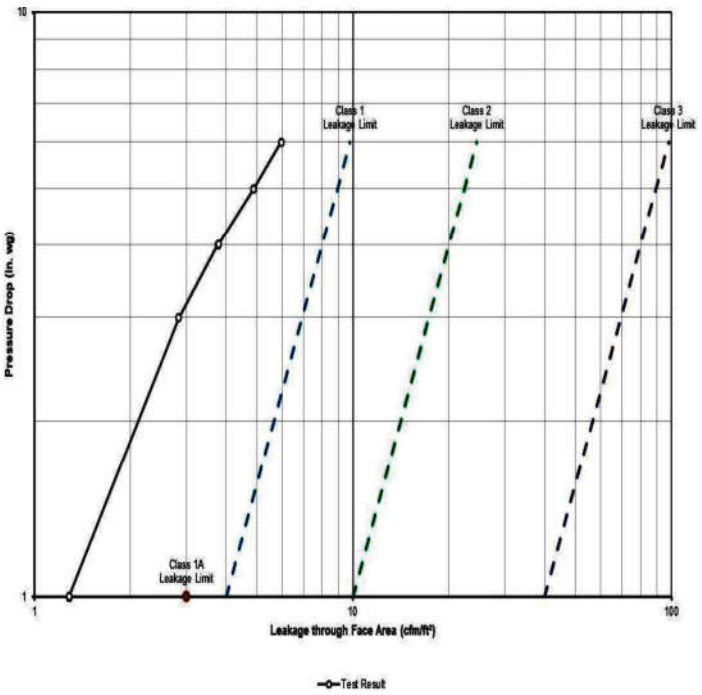
Details of MCD Leakage Class		
MCD-Series	**Leakage Class**	**Static Pressure**
MCD B-20 Series	Class - I	1.5 Kpa
MCD B-40 Series	Class - I	1.5 Kpa



MCD-GAB-22-B- 36 "X 40"



MCD-GB-21-B- 36 "X 40"



MCD-GB-22-B- 36 "X 40"

Selected Products of the company have been Classified / Listed / Tested by various international testing authorities.

Volume Control Dampers - MCD

Ordering Data

MCD	Motorized Volume Control Damper							
	G	Galvanized Steel (GI)						
	S	Stainless Steel (SS)						
	A	Aluminium (AL)						
		G	Galvanized Steel (GI)					
		A	Aluminium (AL)					
		S	Stainless Steel (SS)					
			B	***BETEC CAD.***				
				20	Low Leakage Application			
				40	Heavy Duty Application			
					1	Single Skin 3V		
					2	Aerofoil		
						A	Parallel	
						B	Opposed	
						C	Gear Opposed	
MCD	X	X	B	X	X	X	MCD-GB-21A	
	Frame Material	Blade Material		Series	Blade Type	Blade Operation		

Note :

1) For blade type, add Series to Blade Type.
For example: MCD-GB-(20+1=21) A => MCD-GB-21A.

2) If frame and blade material is same, use single alphabet.

Example : MCD-GB-21A where G = Galvanized frame and blade.
MCD-GAB-21A where G = Galvanized frame
A = Aluminium blade.

Betec Cad certifies that the Models MCD-GAB-22B/ MCD-GB-22B/ MCD-GB-21B are licensed to bear the AMCA Seal.

Special Notes:

beteccad.com

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