

VOLUME CONTROL DAMPERS



FR 02



STANTZ FIRE PROTECTION

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Volume Control Damper - VCD

FIRMAC VCD is a type of damper used in heating, ventilation, and air conditioning conditioning (**HVAC**) systems to control the flow of volume and pressure within ductwork.

Function:

Airflow Regulation:

The primary function of a volume control damper is to regulate the volume (or flow rate) of air passing through the ductwork. By adjusting the position of the damper blades, airflow can be increased or decreased as needed to maintain desired conditions within a building.

Zone Control:

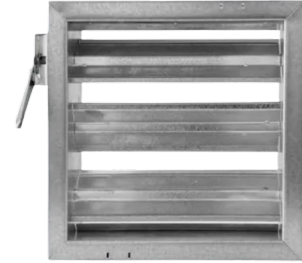
VCDs are often used in HVAC systems to control airflow to specific zones or areas within a building. This allows for more precise temperature and humidity control, as well as energy efficiency by directing conditioned air only where it's needed.

Balancing:

VCDs play a crucial role in balancing airflow throughout an HVAC system. Proper balancing ensures that each room or area receives the appropriate amount of conditioned air for optimal comfort and efficiency.

Construction:

Firmac VCD are made from materials such as galvanized steel, aluminum, or Stainless steel, depending on the application and environmental factors. They are designed to withstand the rigors of HVAC operation and provide long-term reliability.



Blade:

3V- Single Skin Blade 2) Aero-foil Double skin Blade

1. 3V Single Skin Blade.
 - a. Parallel blade operation
 - b. Opposed blade operation.
2. Aerofoil Double Skin Blade.
 - a. Parallel blade operation
 - b. Opposed blade operation.

Firmac Volume Control Damper Classification:

Product	Series	Model	Type	Construction	Blade Type	Blade Operation	Remarks
VCD	FM -50	51	Standard	Single Skin	3V	PB/OB	VCD galvanized type, Parallel blade/ Opposed single skin
		52	Standard	Double Skin	Aerofoil	PB/OB	
	FM -60	61	Low Leakage	Single Skin	3V	PB/OB	VCD galvanized type, Parallel blade/ Opposed single skin
		62	Low Leakage	Double Skin	Aerofoil	PB/OB	
	FM -70	71	Round	Single Skin			Round VCD galvanized type,
	FM -80	81	Fire Rated	Single Skin	3V	PB/OB	Fire Rated VCD galvanized type, Parallel blade/Opposed single skin
FM -90	91	Pre-Insulated	Single Skin	3V / Aerofoil	PB/OB	Pre-Insulated phenolic panel Depth 200mm Galvanized Steel.	

Volume Control Damper - VCD

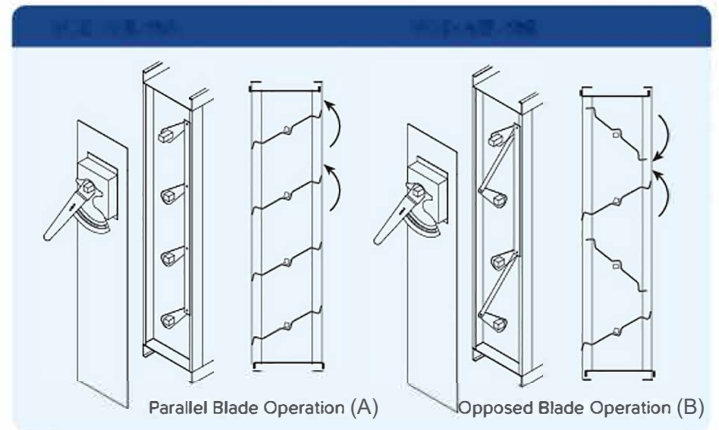
Blade Operation

Parallel blade operation-'A'

Parallel blade dampers 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.

Material Details

All types and models of 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)

Order Index: FM - VCD - GB - 3V - 51

Firmac	Damper Type	Frame Blade Material	Blade Type	Standard Leakage
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Alphabet indicates the type of blade operation

A - Parallel Blade.

B - Opposed Blade.

C - Gear Opposed Blade.

FIRMAC. VCD's are manufactured as per international standards and confirmed to NFPA 90 A.

FM-51 SERIES

Volume Control Damper - VCD; Normal Application

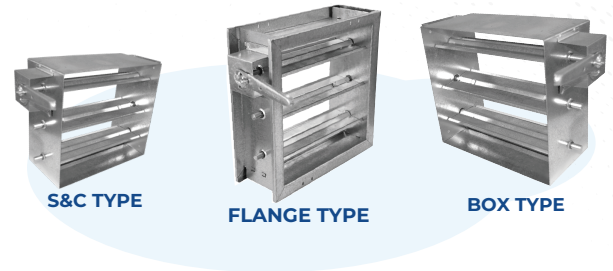
Type: Square and Rectangular

Model: FM-VCD-GB-3V-51

Blade Type : 3V Single Skin; Galvanized Construction

Blade Operation : **PB-** Parallel, **OB-**Opposed.

FIRMAC.FM -51 Series 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 efficient and rattle free operation.



Material Construction

Frame : 6" x 1.18" x 18 gauge (150 x 30 x1.2 mm) thick roll formed galvanized steel 'U' channel with

Blades : 6" (152 mm) wide, 1.2 mm (18 gauge) thick galvanized steel 3V type roll formed.

Blades Operation : Parallel blade standard. Opposed blade available upon request.

Bushes : Nylon.

Blade Spindles : 10 x 10mm square spindle

Quadrant : Heavy gauge galvanized steel with position indications Shut, 1/4, 1/2, 3/4, Open.

Gasket : Neoprene / foam gasket.

Any Combination of W x H

		FM-VCD-GB-3V-51									
W - Inch	6"	8"	12"	16"	18"	20"	24"	28"	32"	36"	
H - Inch	6"	8"	12"	16"	18"	20"	24"	28"	32"	36"	

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

Maximum single module size is 26"x36" (900x900 mm).

Optional Construction

Frame : Thickness up to 1.5 mm

Frame Depth : 130 mm Optional

Blade : Thickness up to 1.5 mm

Blade Width : Up to 150 mm

Frame Type : S&C, Box, Self Flange.

Frame and Blade Material : Stainless Steel, Aluminum, Mild Steel.

FM -52 SERIES

Volume Control Damper - VCD; Normal Application

Type: Square and Rectangular

Model: FM-VCD-GAB-AF-52

Blade Type : Aero foil Double Skin; Aluminum Construction

Blade Operation : **PB-** Parallel, **OB-**Opposed.

FIRMAC.FM -52 Series Volume control dampers are square and rectangular type with parallel or opposed blade operation having Aerofoil Aluminum blade design. These dampers are subjected to medium pressure applications to achieve efficient and rattle free operation.



S&C TYPE

FLANGE TYPE

BOX TYPE

Material Construction

Frame : 6" x 1.18" x 18 gauge (150 x 30 x1.2 mm) thick roll formed galvanized steel 'C' channel with Embossed type for low leakage application.

Blades : 6" (152 mm) wide, 1.2 mm (18 gauge) thick galvanized steel 3V type roll formed.

Blades Operation : Parallel blade standard. Opposed blade available upon request.

Bushes : Nylon.

Blade Spindles : 12 x 12mm square spindle

Quadrant : Heavy gauge galvanized steel with position indications Shut, 1/4, 1/2, 3/4, Open.

Gasket : Neoprene / foam gasket.

Any Combination of W x H

FM-VCD-GAB-AF-52

W - Inch	6"	8"	12"	16"	18"	20"	24"	28"	32"	36"
H - Inch	6"	8"	12"	16"	18"	20"	24"	28"	32"	36"

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

Maximum single module size is 36"x36".

Optional Construction

Frame : Thickness 20 Gauge to 16 Gauge

Flange : 20,30,40 mm Optional.

Blade : Thickness up to 16 Gauge

Blade Width : Up to 150 mm

Frame Type : S&C , Box Type, Self Flange

Frame and Blade Material : Stainless Steel (304/316L)

Bushes : Brass / Bronze / Stainless Steel

FM -61 SERIES

Volume Control Damper - Low Leakage Application

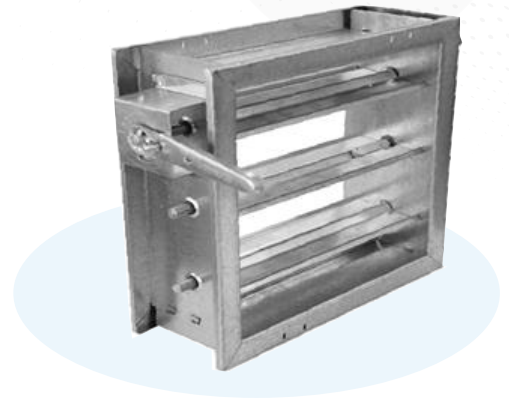
Type: Square and Rectangular

Model: FM-VCD-GB-3V-61

Blade Type : 3V Single Skin; Galvanized Construction

Blade Operation : **PB-** Parallel, **OB-**Opposed.

FIRMAC.FM -61 Series Volume control dampers are square and rectangular. Volume control dampers are square and rectangular types with parallel or opposed blade operation having single skin blade design. Low leakage VCD's are provided with additional Jam Seals for reducing the leakage between the blades and the frames. These dampers are subjected to medium pressure applications to achieve efficient and rattle free operation.



FLANGE TYPE

Material Construction

Frame : 150mm deep, U-channel casing manufactured from 18 Ga. galvanized steel with 30mm flange for duct connection.

Blades : 3V single skin blades manufactured from 18 ga. galvanized steel.

Bushes : Bronze.

Blade Operation : Parallel blade standard. Opposed blade available upon request.

Blade spindles : 10 x 10mm square spindle.

Quadrant : Heavy gauge galvanized steel with position indications Shut, 1/4, 1/2, 3/4, Open.

Jamb Seal : Stainless steel

Any Combination of W x H

FM-VCD-GB-3V-61

W - Inch	6"	8"	12"	16"	18"	20"	24"	28"	32"	36"
H - Inch	6"	8"	12"	16"	18"	20"	24"	28"	32"	36"

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

Maximum single module size is 48"x48" (1200x1200 mm).

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

Dampers of size W or H > 800 mm will have two side linkage.

Optional Construction

Frame : Thickness 20 Gauge to 16 Gauge

Flange : 20,30,40 mm Optional.

Blade : Thickness up to 16 Gauge

Blade Width : Up to 150 mm

Frame Type : S&C , Box Type, Self Flange.

Frame and Blade Material : Stainless Steel (304/316L)

Bushes : Brass / Nylon / Stainless Steel

Gasket : Silicone Rubber Gasket

FM -62 SERIES

Volume Control Damper - Low Leakage Application

Type: Square and Rectangular

Model: FM-VCD-GAB-AF-62

Blade Type : Aero foil Double Skin; Aluminum Construction

Blade Operation : **PB**- Parallel, **OB**-Opposed.

FIRMAC.FM -62 Series Volume control dampers are square and rectangular. Volume control dampers are square and rectangular types with parallel or opposed blade operation having single skin blade design. Low leakage VCD's are provided with additional Jam Seals for reducing the leakage between the blades and the frames. These dampers are subjected to medium pressure applications to achieve efficient and rattle free operation.



FLANGE TYPE

Material Construction

Frame : 150mm deep, U-channel casing manufactured from 18 Ga. galvanized steel with 30mm flange for duct connection.

Blades : Aluminium Aerofoil type, Double skin blades manufactured from 18 Ga.

Bushes : Bronze.

Blade Operation : Parallel blade standard. Opposed blade available upon request.

Blade spindles : 12 x 12mm square spindle.

Quadrant : Heavy gauge galvanized steel with position indications Shut, 1/4, 1/2, 3/4, Open.

Jamb Seal : Stainless steel

Any Combination of W x H

FM-VCD-GAB-AF-62											
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"	48"

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

Maximum single module size is 36"x36" (900x900 mm).

Optional Construction

Frame : Thickness 20 Gauge to 16 Gauge

Flange : 20,30,40 mm Optional.

Blade Width : Up to 150 mm

Frame Type : S&C, Box Type, Self Flange.

Frame and Blade Material : Stainless Steel (304/316L)
Aluminium, Mild Steel

Bushes : Brass / Bronze / Stainless Steel

Gasket : Silicone Rubber Gasket

FM -71 SERIES

Volume Control Damper - Round

Type: Round

Model: FM-VCD-GB-R-71

Blade Type : Galvanized Construction

Blade Operation : **PB-** Parallel, **OB-**Opposed.

FIRMAC.FM -71 Series Round volume control damper designed to access easily with circular ducts of any diameter. The controlling blade is made of galvanised sheet steel.



Material Construction

Frame : 24-22 Ga thickness galvanized steel.

Blades : 20 Ga thickness galvanized steel.

Bushes : Nylon.

Axels : 8 mm Square galvanized steel.

Quadrant : Heavy gauge galvanized steel with position indications Shut, 1/4, 1/2, 3/4, Open.

Optional Construction

Frame : Thickness 16 Gauge to 20 Gauge

Frame and Blade Material : Stainless Steel (304/316L)

Bushes : Brass / Bronze / Stainless Steel

Gasket : Neoprene / foam gasket to provide additional low leakage operation

FM -81 SERIES

Volume Control Damper - Fire Rated

Type: Square and Rectangular

Model: FM-VCD-GB-3V-81

Blade Type : 3V Single Skin; Galvanized Construction

Blade Operation : **PB**- Parallel, **OB**-Opposed.

FIRMAC.FM -81 Series Volume control dampers are square and rectangular. Volume control dampers are square and rectangular types with parallel or opposed blade operation having single skin blade design. Fire Rated VCD's are provided with additional Jam Seals, Silicon Fire Rated Gasket on Blade Tip.



Fire Rated Volume Control Damper

Material Construction

Frame : 150mm deep, U-channel casing manufactured from 18 Ga. galvanized steel with 30mm flange for duct connection.

Blade : 3V groove type, single skin blades manufactured from 18 ga. galvanized steel

Bushes : Brass.

Blade spindles : 10 x 10mm square spindle.

Quadrant : Heavy gauge galvanized steel with position indications Shut, 1/4, 1/2, 3/4, Open.

Blade Operation: Parallel blade standard. Opposed blade available upon request.

Gasket : Silicone Fire Rated Gasket

Jamb Seal : Stainless steel

Sealant : Flameguard Fire Rated

Any Combination of W x H

FM-VCD-GB-3V-81

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"	48"

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

Maximum single module size is 48"x48" (1200x1200 mm).

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

Dampers of size W or H > 800 mm will have two side linkage.

Optional Construction

Frame : Thickness 18 Gauge to 16 Gauge

Frame and Blade Material : Stainless Steel (304/316L), GI, MS.

Bushes : Stainless Steel

Flange : 20,30,40 mm Optional.

Blade : Thickness up to 16 Gauge

Blade Width : Up to 150 mm

FM -91 SERIES

Volume Control Damper - Pre-Insulated

Model : FM-VCD-PIGB-3V-91

Blade Type : 3V-Groove type / Aero foil type Galvanized.

Blade Operation : **PB-** Parallel, **OB-** Opposed.



FIRMAC.FM -91 Series Pre-Insulated Volume control dampers are made from a high performance rigid thermoset polyurethane insulation core, faced on both sides with an aluminum foil. The insulation panels are fixed together with a special polymer / aluminum profile to form ductwork sections. The blades are made of aluminum aero foil or Galvanized sheet, which provides air flow. The dampers are manufactured in multiple sections up to 1000 x 1000 mm.

The channel frame has a standard width of 125 mm. However, the channel width varies from 100 mm to 150 mm, dependent on the height of the damper and the width of the blade. For a MODEL: FM-VCD-PIGB-3V-91 with a height of less than 200 mm, it must only include a single blade.

However, those with a height of more than 250 mm may include multiple blades. In addition, those with a height of more than 250 mm can have either opposite or parallel blades.

Material Construction

Frame : 20mm thickness Pre-Insulated Phenolic Panel, 200mm depth.

Blade: 26 Gauge-18Gauge. thick Galvanized Steel, Triple V-Groove Blade, Aerofoil.

Bushes : Nylon/Brass.

Blade spindles : 12.50mm Diameter plated steel rods

Flange : Aluminum Flange Joint or PVC

Linkage : 2.00mm thick Galvanized Steel Plate

Quadrant: Manual Galvanized Steel Locking Quadrant



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