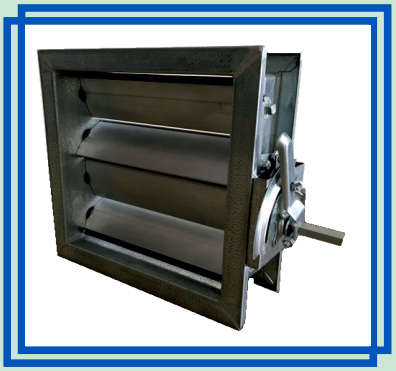
DVAC

DUCT VENTILATION AIR CONDITIONING Co. (W.L.L.)

Volume Control Dampers Catalogue



Rectangular, Flat Oval, Circular Spigot Case & Circular

Types: VCD-FC, VCD-SC, VCD-RSC, VCD-CSC, VCD-FOSC, VCD & ALVCD

MADE IN QATAR

DUCT VENTILATION AIR CONDITIONING Co. (W.L.L.)

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Tel: +974 44 500 118 - 44 500 119 - Fax: +974 44 500 117 - Doha, State Of Qatar

INTRODUCTION

A **Damper** is a valve or plate that regulates the Flow of Air inside a duct, chimney, VAV Box, or other air handling equipment. It may be used to cut off central air conditioning (heating or cooling) to an unused room, or to regulate it for room-by-room temperature and climate control. Its operation can be manual or automatic. Manual dampers are turned by a handle on the outside of a duct. Automatic Dampers are used to regulate airflow constantly and are operated by electric or pneumatic motors, in turn controlled by a thermostat or building automation system. Automatic or motorized dampers may also be controlled by a solenoid, and the degree of air-flow calibrated, perhaps according to signals from the thermostat going to the actuator of the damper in order to modulate the flow of air-conditioned air in order to effect climate control.

Volume control is an essential requirement in most ventilation systems.
The need to balance the airflow to different areas is as important as the choice of grille or diffuser itself.

GENERAL

DVAC has a wide range of Volume Control Dampers that are designed to provide positive control of Air Flow within Ventilation Systems.

DVAC Volume Control Dampers can be manufactured with different types, shapes and adjustment systems to suit most of installation.

The VCD should have a low leakage when closed, not create too much resistance when open and should be easy to operate.

Linkage will be fixed at one side of the frame. Additional side seals can be incorporated to provide a better shut off when close, without hindering performance when open.

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RECTANGULAR VOLUME CONTROL DAMPERS (Triple-Vee Profile Blades Galvanized Steel)

Types:

- VCD-FC
- VCD-SC
- VCD-RSC

Having **Triple-Vee profile**, to give maximum strength. Dampers are available with either Opposed Blade Or Parallel Blade Action **(Standard Parallel)**.

Standard Construction

- **Casing:** Shall be made of LFQ Galvanized Steel complying with ASTM A653, having G90 Coating Designation.
- **VCD-FC:** 16 Gauge (1.5mm Thickness)
- **VCD-SC:** 16 Gauge (1.5mm Thickness)
- **VCD-RSC:** 22 Gauge (0.8mmThickness) Double Skin

- **Blades:** Shall be made of LFQ Galvanized Steel complying with ASTM A653, having G90 Coating Designation, **Triple-Vee profile**, 4"(100mm) Depth, 16 Gauge (1.5mm Thickness)

- **Quadrant:** Shall be made of Galvanized Steel 12 Gauge (2.5mm Thickness) with integral rotation slot, indicating blade Open and Close position.

- **Axles:** 1/2" x 1/2" (12x12mm) zinc plated square mild steel.

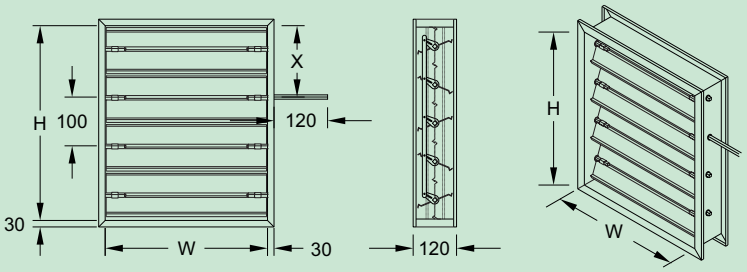
- **Linkage:** Side linkage out of airstream is 14 Gauge (2.0mm Thickness) Galvanized Steel (Concealed in frame).

- **Bearings:** Synthetic (acetal) Sleeve type.

Optional:

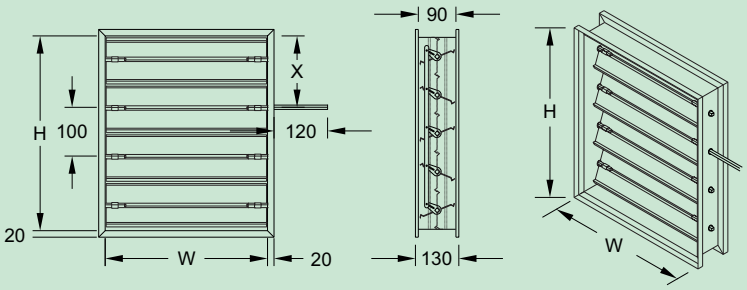
- BRONZE BEARINGS
- FLEXIBLE STAINLESS STEEL JAMB SEALS
- ACTUATORS
- BLADE SEALS

Flange Casing (Standard)
Code: VCD-FC is fabricated of one piece Roll-Formed channel.



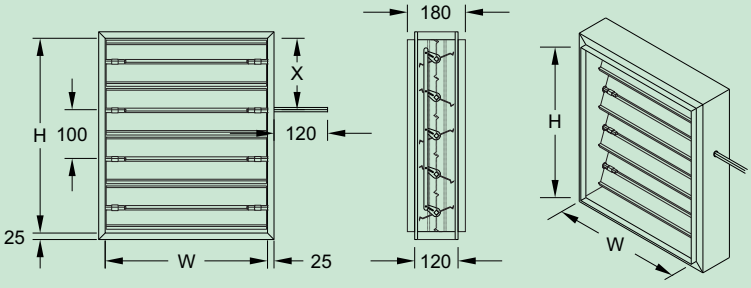
VCD-FC is to be installed between two pieces of ducts by flanges.

Sleeve Casing (Optional)
Code: VCD-SC is fabricated of one piece Roll-Formed hat channel.



VCD-SC is to be installed inside the ducts.
Width & Height furnished approximately 1/4" (6mm) undersize

Rectangular Spigot Casing (Optional)
Code: VCD-RSC is fabricated of double skin steel (Internal liner is optional).



VCD-RSC is to be flexible and installed between 2 pieces of ducts by three connection types: **- Slip & Drive - Slide-on Flange - Companion Angles**

*** Materials Used for VCD (Casing & Blades):**
- Galvanized Steel: (Standard) L.F.Q. Complying with ASTM A653 and Having G90 Coating Designation.
- Stainless Steel : (Optional) Complying with ASTM A240M / A480M, Grade 304, 304L, 316 & 316L.

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RECTANGULAR VOLUME CONTROL DAMPERS (Triple-Vee Profile Blades Galvanized Steel)

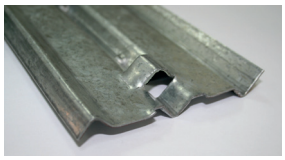
Ratings

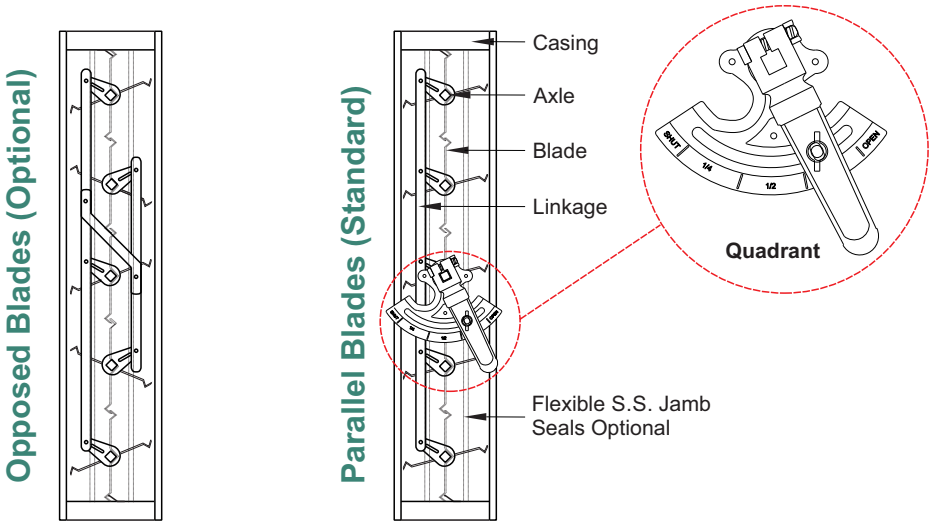
Pressure	up to 4.0 in	up to 1.0 kPa
Velocity	3000 fpm	15.2 m/s
Temperature	-40°F to 212°F	-40°C to +100°C

Selection of Actuators

Actuators are selected by torque requirement and application type in relation to the size of the damper.

Area of Dampers	Torque of Actuators	Type of Actuators
up to 0.8 m^2	5 Nm	- On / Off - Spring Return - Modulating
up to 1.6 m^2	10 Nm	
up to 4.0 m^2	20 Nm	





Number of Blades And Position of Drive Arm

Height (mm)	Number of Blades	Position Of Drive Arm X (mm)
100	1	50.0
125	1	62.5
150	1	75.0
175	1	87.5
200	1	100.0
225	1	112.5
250	1	125.0
275	1	137.5
300	1	150.0
325	3	162.5
350	3	175.0
375	3	187.5
400	4	200.0
425	4	212.5
450	4	225.0
475	4	237.5
500	5	200.0
525	5	210.0
550	5	220.0
575	5	230.0
600	6	300.0
625	6	312.5
650	6	325.0
675	6	337.5
700	7	300.0
725	7	310.0
750	7	320.0
775	7	330.0
800	8	300.0
825	8	310.0
850	8	320.0
875	8	330.0
900	9	400.0
925	9	410.0
950	9	420.0
975	9	430.0
1000	10	400.0
1025	10	410.0
1050	10	420.0
1075	10	430.0
1100	11	500.0
1125	11	510.0
1150	11	520.0
1175	11	530.0
1200	12	500.0
1225	12	510.0
1250	12	520.0
1275	12	530.0
1300	13	600.0
1325	13	610.0
1350	13	620.0
1375	13	630.0
1400	14	600.0
1425	14	610.0
1450	14	620.0
1475	14	630.0
1500	15	700.0
1524	15	710.0

Size Limitations:

- **Minimum Size:** One blade: 4"x4" (100x100mm)
- **Maximum Size:** Single section: 40"x60" (1016x1524mm)
  Multiple sections: Unlimited

Ordering example:
VCD-FC 300x150
Code
Width x Height

*** Materials Used for VCD (Casing & Blades):**

- Galvanized Steel: (Standard) L.F.Q. Complying with ASTM A653 and Having G90 Coating Designation.
- Stainless Steel : (Optional) Complying with ASTM A240M / A480M, Grade 304, 304L, 316 & 316L.

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RECTANGULAR VOLUME CONTROL DAMPERS (Airfoil Double Skin Profile Blades Galvanized Steel)

Types:

- **VCD-FC-AGI**
- **VCD-SC-AGI**
- **VCD-RSC-AGI**

Having aerodynamic **Galvanized** blade for low noise generation. Dampers are available with either Opposed Blade or Parallel Blade Action **(Standard Opposed).**

Standard Construction

- **Casing:** Shall be made of LFQ Galvanized Steel complying with ASTM A653, having G90 Coating Designation.
- **VCD-FC-AGI:** 16 Gauge (1.5mm Thickness)
- **VCD-SC-AGI:** 16 Gauge (1.5mm Thickness)
- **VCD-RSC-AGI:** 22 Gauge (0.8mmThickness) Double Skin

- **Blades:** Shall be made of LFQ Galvanized Steel complying with ASTM A653, having G90 Coating Designation, **Airfoil Double Skin,** 4"(100mm) Depth, 22 Gauge (0.8mm Thickness)

- **Quadrant:** Shall be made of Galvanized Steel 12 Gauge (2.5mm Thickness) with integral rotation slot indicating blade Open and Close position.

- **Axles:** 1/2" x 1/2" (12x12mm) zinc plated square mild steel.

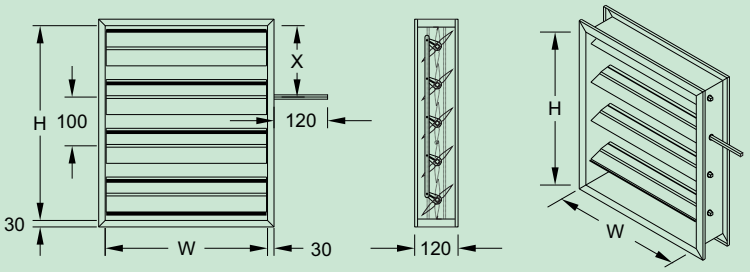
- **Linkage:** Side linkage out of airstream is 14 Gauge (2.0mm Thickness) Galvanized Steel (Concealed in frame).

- **Bearings:** Synthetic (acetal) Sleeve type.

Optional:

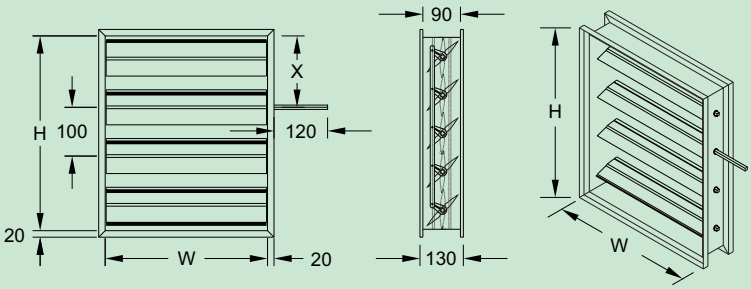
- **BRONZE BEARINGS**
- **FLEXIBLE STAINLESS STEEL JAMB SEALS**
- **ACTUATORS**
- **BLADE SEALS**

Flange Casing (Standard)
Code: VCD-FC-AGI is fabricated of one piece Roll-Formed channel.



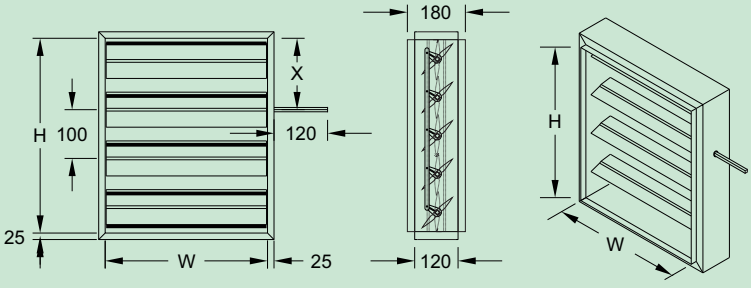
VCD-FC-AGI is to be installed between two pieces of ducts by flanges.

Sleeve Casing (Optional)
Code: VCD-SC-AGI is fabricated of one piece Roll-Formed hat channel.



VCD-SC-AGI is to be installed inside the ducts.
Width & Height furnished approximately 1/4" (6mm) undersize

Rectangular Spigot Casing (Optional)
Code: VCD-RSC-AGI is fabricated of double skin steel (Internal liner is optional).



VCD-RSC-AGI is to be flexible and installed between 2 pieces of ducts by three connection types: **- Slip & Drive - Slide-on Flange - Companion Angles**

*** Materials Used for VCD (Casing & Blades):**

- Galvanized Steel: (Standard) L.F.Q. Complying with ASTM A653 and Having G90 Coating Designation.
- Stainless Steel : (Optional) Complying with ASTM A240M / A480M, Grade 304, 304L, 316 & 316L.

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RECTANGULAR VOLUME CONTROL DAMPERS (Airfoil Double Skin Profile Blades Galvanized Steel)

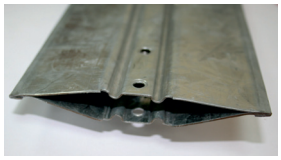
Ratings

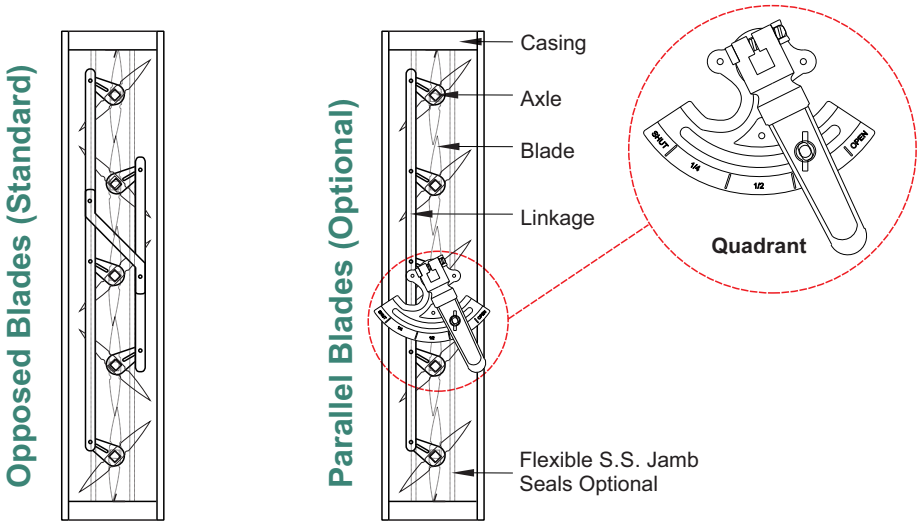
Pressure	up to 3.0 in	up to 0.75 kPa
Velocity	3000 fpm	15.2 m/s
Temperature	-40°F to 212°F	-40°C to +100°C

Selection of Actuators

Actuators are selected by torque requirement and application type in relation to the size of the damper.

Area of Dampers	Torque of Actuators	Type of Actuators
up to 0.8 m^2	5 Nm	- On / Off - Spring Return - Modulating
up to 1.6 m^2	10 Nm	
up to 4.0 m^2	20 Nm	





Number of Blades and Position of Drive Arm

Height (Mm)	Number of Blades	Position of Drive Arm X (Mm)
100	1	50.0
125	1	62.5
150	1	75.0
175	1	87.5
200	2	50.0
225	2	62.5
250	2	75.0
275	2	87.5
300	3	150.0
325	3	162.5
350	3	175.0
375	3	187.5
400	4	200.0
425	4	212.5
450	4	225.0
475	4	237.5
500	5	200.0
525	5	210.0
550	5	220.0
575	5	230.0
600	6	300.0
625	6	312.5
650	6	325.0
675	6	337.5
700	7	300.0
725	7	310.0
750	7	320.0
775	7	330.0
800	8	300.0
825	8	310.0
850	8	320.0
875	8	330.0
900	9	400.0
925	9	410.0
950	9	420.0
975	9	430.0
1000	10	400.0
1025	10	410.0
1050	10	420.0
1075	10	430.0
1100	11	500.0
1125	11	510.0
1150	11	520.0
1175	11	530.0
1200	12	500.0
1225	12	510.0
1250	12	520.0
1275	12	530.0
1300	13	600.0
1325	13	610.0
1350	13	620.0
1375	13	630.0
1400	14	600.0
1425	14	610.0
1450	14	620.0
1475	14	630.0
1500	15	700.0
1524	15	710.0

Size Limitations:

- **Minimum Size:** One blade: 4"x4" (100x100mm)
- **Maximum Size:** Single section: 28"x60" (711x1524mm)
  Multiple sections: Unlimited

Ordering example:
VCD-FC-AGI 300x150
Code
Width x Height

*** Materials Used for VCD (Casing & Blades):**

- Galvanized Steel: (Standard) L.F.Q. Complying with ASTM A653 and Having G90 Coating Designation.
- Stainless Steel : (Optional) Complying with ASTM A240M / A480M, Grade 304, 304L, 316 & 316L.

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RECTANGULAR VOLUME CONTROL DAMPERS (Aluminum Extruded Airfoil Blades)

Types:

- VCD-FC-AA
- VCD-SC-AA
- VCD-RSC-AA

Having aerodynamic **Aluminum** blade extrusion for low noise generation, Blade tip seals to give very low closed blade leakage. Dampers are available with either Opposed Blade or Parallel Blade Action **(Standard Opposed).**

Standard Construction

- **Casing:** Shall be made of LFQ Galvanized Steel complying with ASTM A653, having G90 Coating Designation.
- **VCD-FC-AA:** 16 Gauge (1.5mm Thickness)
- **VCD-SC-AA:** 16 Gauge (1.5mm Thickness)
- **VCD-RSC-AA:** 22 Gauge (0.8mm Thickness) Double Skin

- **Blades:** 3"1/4(83mm) Depth, 0.0512"(1.3mm Thick), dual wall extruded Aluminum Airfoil Profiles.

- **Quadrant:** Shall be made of Galvanized Steel 12 Gauge (2.5mm Thickness) with integral rotation slot indicating blade Open and Close position.

- **Axles:** 1/2" x 1/2" (12x12mm) zinc plated square mild steel.

- **Linkage:** Side linkage out of airstream is 14 Gauge (2.0mm Thickness) Galvanized Steel (Concealed in frame).

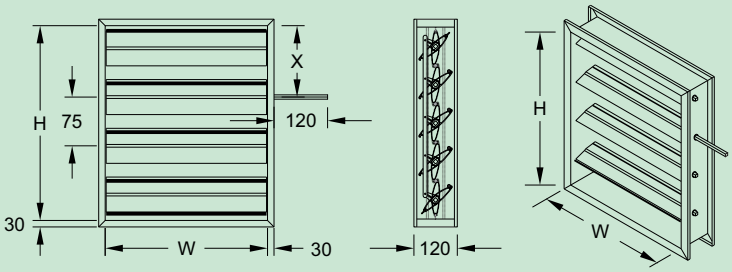
- **Bearings:** Synthetic (acetal) Sleeve Type.

- **Seals:** **EPDM** Extruded blade edge seals.

Optional:

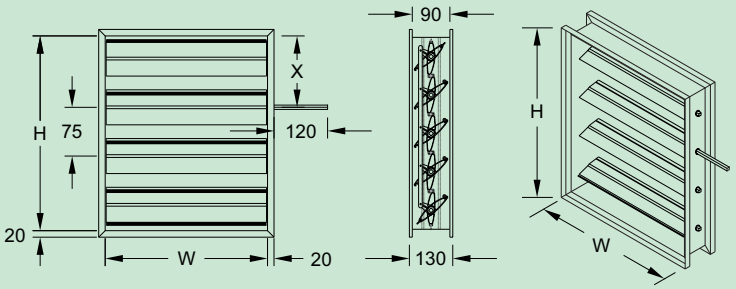
- BRONZE BEARINGS
- FLEXIBLE STAINLESS STEEL JAMB SEALS
- ACTUATORS

Flange Casing (Standard)
Code: VCD-FC-AA is fabricated of one piece Roll-Formed channel.



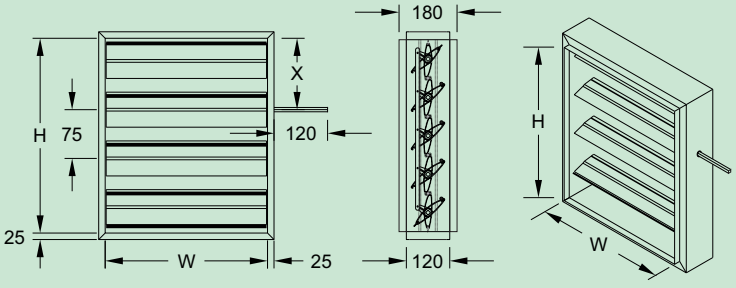
VCD-FC-AA is to be installed between two pieces of ducts by flanges.

Sleeve Casing (Optional)
Code: VCD-SC-AA is fabricated of one piece Roll-Formed hat channel.



VCD-SC-AA is to be installed inside the ducts.
Width & Height furnished approximately 1/4" (6mm) undersize

Rectangular Spigot Casing (Optional)
Code: VCD-RSC-AA is fabricated of double skin steel (Internal liner is optional).



VCD-RSC-AA is to be flexible and installed between 2 pieces of ducts by three connection types: **- Slip & Drive - Slide-on Flange - Companion Angles**

*** Materials Used for VCD (Casing & Blades):**
- Galvanized Steel: (Standard) L.F.Q. Complying with ASTM A653 and Having G90 Coating Designation.
- Stainless Steel : (Optional) Complying with ASTM A240M / A480M, Grade 304, 304L, 316 & 316L.

DUCT VENTILATION AIR CONDITIONING Co. (W.L.L.)

Volume Control Dampers:
Rectangular

- VCD-FC-AA
- VCD-SC-AA
- VCD-RSC-AA

As per: - SMACNA (2nd Edition-1995) See Pages 2.16/2.17
- SMACNA (3rd Edition-2005) See Pages 7.6/7.7

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RECTANGULAR VOLUME CONTROL DAMPERS (Aluminum Extruded Airfoil Blades)

Ratings

Damper Width	Maximum System Pressure	Maximum System Velocity
12" (305)	8.4 in. wg (2.1 kPa)	5000 fpm (25.4 m/s)
24" (610)	6.1 in. wg (1.5 kPa)	4000 fpm (20.3 m/s)
36" (914)	5.3 in. wg (1.3 kPa)	3000 fpm (15.2 m/s)
48" (1219)	3.1 in. wg (0.8 kPa)	3000 fpm (15.2 m/s)

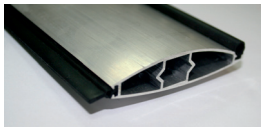
Leakage: 7.0 cfm/ft^2 @ 10.0 in. wg (0.04m^3/s/m^2 @ 2.50 kPa)
5.0 cfm/ft^2 @ 4.0 in. wg (0.03m^3/s/m^2 @ 1.00 kPa)
3.0 cfm/ft^2 @ 1.0 in. wg (0.02m^3/s/m^2 @ 0.25 kPa)

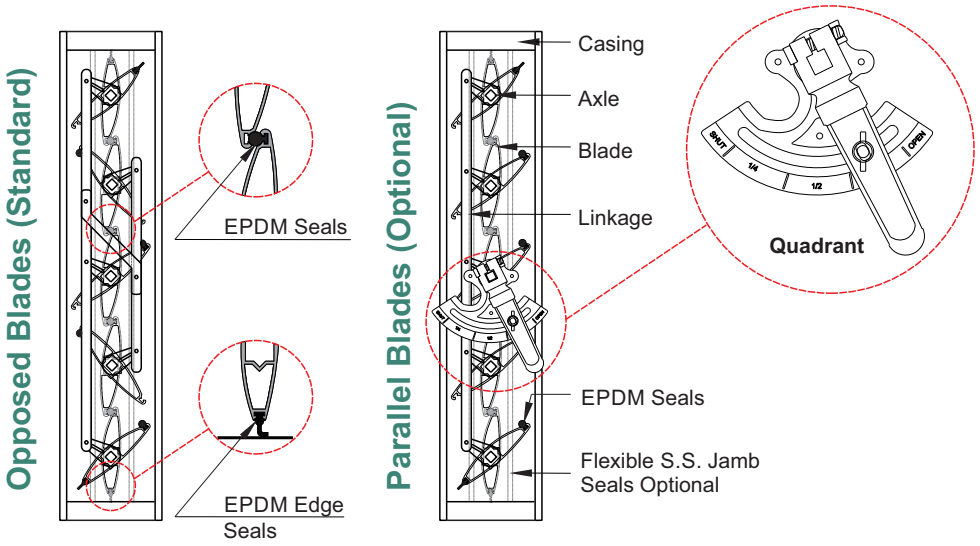
Temperature: -40°F to 212°F (-40°C to + 100°C)

Selection of Actuators

Actuators are selected by torque requirement and application type in relation to the size of the damper.

Area of Dampers	Torque of Actuators	Type of Actuators
up to 0.8 m^2	5 Nm	- On / Off - Spring Return - Modulating
up to 1.6 m^2	10 Nm	
up to 4.0 m^2	20 Nm	





Size Limitations:

- **Minimum Size:** One blade: 4"x4" (100x100mm)
- **Maximum Size:** Single section: 48"x60" (1219x1524mm)
  Multiple sections: Unlimited

Ordering example:
VCD-FC-AA 300x150
Code
Width x Height

Number of Blades and Position of Drive Arm

Height (mm)	Number of Blades	Position of Drive Arm X (mm)
100	1	50.0
125	1	62.5
150	2	37.5
175	2	50.0
200	2	62.5
225	3	112.5
250	3	125.0
275	3	137.5
300	4	112.5
325	4	125.0
350	4	137.5
375	5	187.5
400	5	200.0
425	5	212.5
450	6	187.5
475	6	200.0
500	6	212.5
525	7	262.5
550	7	275.0
575	7	287.5
600	8	262.5
625	8	275.0
650	8	287.5
675	9	337.5
700	9	350.0
725	9	362.5
750	10	337.5
775	10	350.0
800	10	362.5
825	11	412.5
850	11	425.0
875	11	437.5
900	12	412.5
925	12	425.0
950	12	437.5
975	13	487.5
1000	13	500.0
1025	13	512.5
1050	14	487.5
1075	14	500.0
1100	14	512.5
1125	15	562.5
1150	15	575.0
1175	15	587.5
1200	16	562.5
1225	16	575.0
1250	16	587.5
1275	17	637.5
1300	17	650.0
1325	17	662.5
1350	18	637.5
1375	18	650.0
1400	18	662.5
1425	19	712.5
1450	19	725.5
1475	19	737.5
1500	20	712.5
1524	20	725.5

* Materials Used for VCD (Casing):

- Galvanized Steel: (Standard) L.F.Q. Complying with ASTM A653 and Having G90 Coating Designation.
- Stainless Steel : (Optional) Complying with ASTM A240M / A480M, Grade 304, 304L, 316 & 316L.
- Aluminum Metal : (Optional) Complying with ASTM B209, Alloy 3003, Temper H14.

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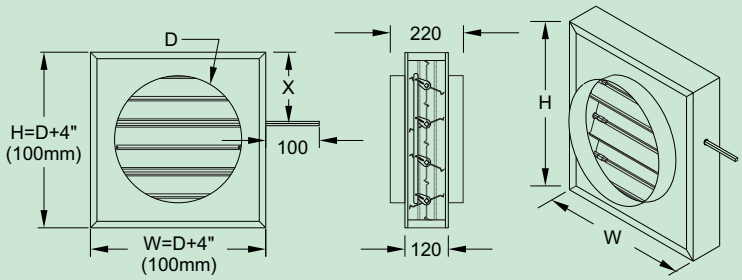
CIRCULAR SPIGOT CASE VOLUME CONTROL DAMPERS (Triple-Vee Profile Blades Galvanized Steel)

Type:

VCD-CSC Having **Triple-Vee profile,** to give maximum strength. Dampers are available with either Opposed Blade or Parallel Blade Action **(Standard Parallel).**

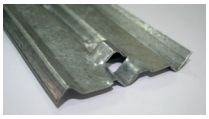
Circular Spigot Casing
Code: VCD-CSC is fabricated of double skin steel (Internal liner is optional).



VCD-CSC is to be flexible & installed between 2 pieces of ducts by three connection types: **Circular Spigot - Circular Angle Flange - Circular Flat Flange**

Standard Construction

- **Casing:** Shall be made of LFQ Galvanized Steel complying with ASTM A653, having G90 Coating Designation, 22 Gauge (0.8mmThickness) Double skin.
- **Blades:** Shall be made of LFQ Galvanized Steel complying with ASTM A653, having G90 Coating **Triple-Vee profile**, 4" (100mm) Depth, 16 Gauge (1.5mm Thickness).
- **Quadrant:** Shall be made of Galvanized Steel 12 Gauge (2.5mm Thickness) with integral rotation slot indicating blade Open & Close position.
- **Axles:** 1/2" x 1/2" (12x12mm) zinc plated square mild steel.
- **Linkage:** Side linkage out of airstream is 14 Gauge (2.0mm Thickness) Galvanized Steel concealed in frame.
- **Bearings:** Synthetic (acetal) Sleeve type.



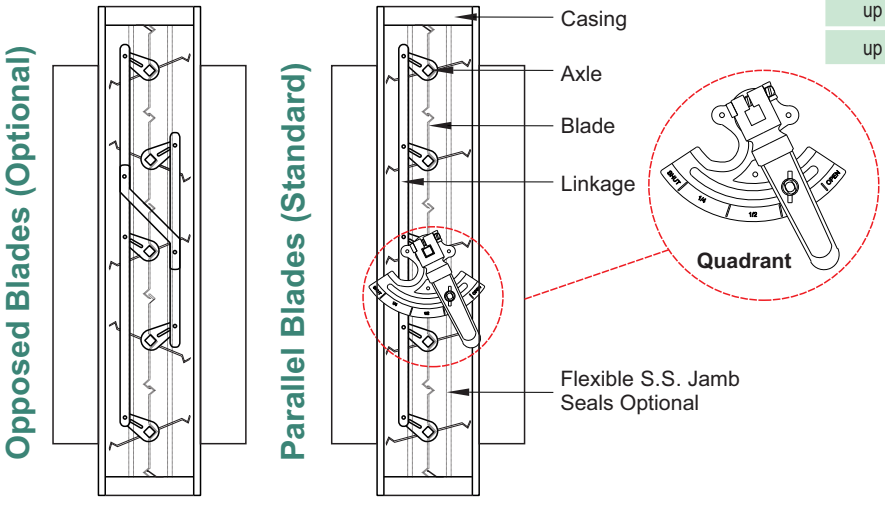
Ratings

Pressure	up to 4.0 in	up to 1.0 kPa
Velocity	3000 fpm	15.2 m/s
Temperature	-40°F to 212°F	-40°C to + 100°C

Selection of Actuators

Actuators are selected by torque requirement and application Type in relation to the size of the damper.

Dia. of Dampers	Torque of Actuators	Type of Actuators
up to 600mm	5 Nm	- On / Off - Spring Return - Modulating
up to 900mm	10 Nm	



Number of Blades and Position of Drive Arm

Standard Diameter (mm)	Width x Height (mm)	Number of Blades	Position of Drive Arm X (mm)
100	200 x 200	2	50.0
125	225 x 225	2	62.5
150	250 x 250	2	75.0
180	280 x 280	2	92.5
200	300 x 300	3	100.0
224	324 x 324	3	112.5
250	350 x 350	3	125.0
280	380 x 380	3	140.0
300	400 x 400	4	200.0
350	450 x 450	4	212.5
400	500 x 500	5	200.0
450	550 x 550	5	225.0
500	600 x 600	6	200.0
550	650 x 650	6	225.0
600	700 x 700	7	300.0
650	750 x 750	7	325.0
700	800 x 800	8	300.0
750	850 x 850	8	325.0
800	900 x 900	9	400.0
850	950 x 950	9	425.0
900	1000 x 1000	10	400.0

Size Limitations:

- **Minimum Diameter Size :** DN 4" (100mm)
- **Maximum Diameter Size:** DN 36" (914mm)

Ordering example:
VCD-CSC 300
Code
Diameter

*** Materials Used for VCD (Casing & Blades):**

- Galvanized Steel: (Standard) L.F.Q. Complying with ASTM A653 and Having G90 Coating Designation.
- Stainless Steel : (Optional) Complying with ASTM A240M / A480M, Grade 304, 304L, 316 & 316L.

DUCT VENTILATION AIR CONDITIONING Co. (W.L.L.)

Volume Control Dampers: - VCD-FOSC

Flat Oval

As per: - SMACNA (2nd Edition-1995) See Pages 2.16/2.17
- SMACNA (3rd Edition-2005) See Pages 7.6/7.7

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FLAT OVAL VOLUME CONTROL DAMPERS (Triple-Vee Profile Blades Galvanized Steel)

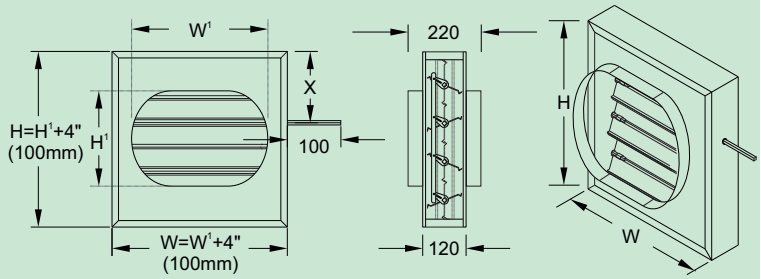
Type:

VCD-FOSC Having **Triple-Vee profile,** to give maximum Strength. Dampers are available with either opposed blade or parallel blade action **(Standard parallel).**

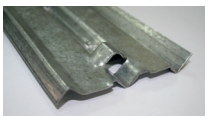
Standard Construction

- **Casing:** Shall be made of LFQ Galvanized Steel complying with ASTM A653, having G90 Coating Designation, 22 Gauge (0.8mmThickness) Double skin.
- **Blades:** Shall be made of LFQ Galvanized Steel complying with ASTM A653, having G90 Coating **Triple-Vee profile**, 4" (100mm) Depth, 16 Gauge (1.5mm Thickness).
- **Quadrant:** Shall be made of Galvanized Steel 12 Gauge (2.5mm Thickness) with integral rotation slot indicating blade Open & Close position.
- **Axles:** 1/2" x 1/2" (12x12mm) zinc plated square mild steel.
- **Linkage:** Side linkage out of airstream is 14 Gauge (2.0mm Thickness) Galvanized Steel concealed in frame.
- **Bearings:** Synthetic (acetal) Sleeve type.

Flat Oval Spigot Casing
Code: VCD-FOSC is fabricated of double skin steel (Internal liner is optional).



VCD-FOSC is to be flexible and installed between 2 pieces of ducts by three connection types: **Flat Oval Spigot - Flat Oval Angle Flange - Flat Oval Flat Flange**



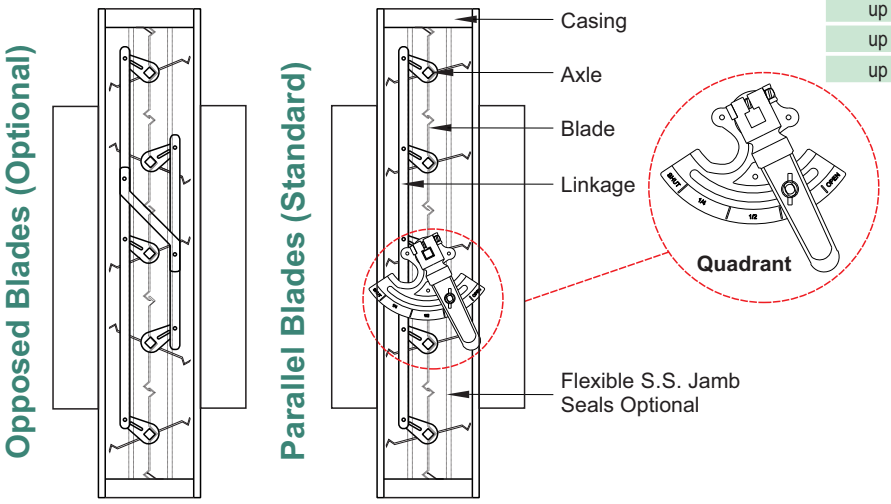
Ratings

Pressure	up to 4.0 in	up to 1.0 kPa
Velocity	3000 fpm	15.2 m/s
Temperature	-40°F to 212°F	-40°C to + 100°C

Selection of Actuators

Actuators are selected by torque requirement and application type in relation to the size of the damper.

Area of Dampers	Torque of Actuators	Type of Actuators
up to 0.8 m^2	5 Nm	- On / Off - Spring Return - Modulating
up to 1.6 m^2	10 Nm	
up to 4.0 m^2	20 NM	



Number of Blades and Position of Drive Arm

Height (mm)	Number of Blades	Position of Drive Arm X (mm)
100	2	50.0
150	2	75.0
200	3	100.0
250	3	125.0
300	4	200.0
350	4	212.5
400	5	200.0
450	5	225.0
500	6	200.0
550	6	225.0
600	7	300.0
650	7	325.0
700	8	300.0
750	8	325.0
800	9	400.0
850	9	425.0
900	10	400.0

Size Limitations:

- **Minimum Size:** One blade: 4"x4" (100x100mm)
- **Maximum Size:** Single section: 36"x60" (914x1524mm)
  Multiple sections: Unlimited

Ordering example:
VCD-FOSC 600x250
Code
Width x Height

*** Materials Used for VCD (Casing & Blades):**

- Galvanized Steel: (Standard) L.F.Q. Complying with ASTM A653 and Having G90 Coating Designation.
- Stainless Steel : (Optional) Complying with ASTM A240M / A480M, Grade 304, 304L, 316 & 316L.

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GALVANIZED CIRCULAR VOLUME CONTROL DAMPERS

Types:

VCD shall be installed between 2 pieces of circular ducts or plenum box. **VCD** with normal sizes of 100 to 350mm is circular control dampers to adjust air volume flow rates in air conditioning and ventilation systems.

Standard Construction

- **Casing:** Shall be made of LFQ Galvanized Steel complying with ASTM A653, having G90 Coating Designation.

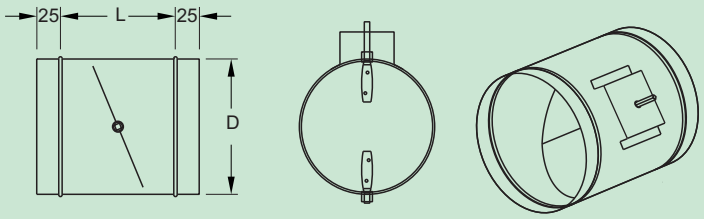
- **Blades:** Shall be made of LFQ Galvanized Steel complying with ASTM A653 and having G90 Coating Designation.

- **Quadrant:** Shall be made of Galvanized Steel 16 Gauge (1.5mm Thickness) with integral rotation slot indicating blade Open & Close position.

- **Axles:** 1/2" x 1/2" (12x12mm) zinc plated square mild steel.

- **Bearings:** Synthetic (acetal) Sleeve type.

Circular Volume Control Damper
Code: VCD is fabricated of steel



VCD is to be installed between two pieces of circular ducts or plenum box
The damper is designed without a seal (Approximately 3mm clearance all around).

Ratings

Pressure	up to 1.0 in	up to 0.25 kPa
Velocity	2000 fpm	10.2 m/s
Temperature	-40°F to 212°F	-40°C to + 100°C

Selection of Actuators

Actuators are selected by torque requirement and application type in relation to the size of the damper.

Dia. of Dampers	Torque of Actuators	Type of Actuators
up to 300mm	5 Nm	- On / Off - Spring Return - Modulating
up to 400mm	10 Nm	

Galvanized Circular Damper Dimensions and Thickness

Diameter Sizes (mm)	Length (mm)	Casing Thickness (mm	Blade Thickness (mm)	Axle and Bearing (mm)
100	170	0.6	1.0	6x6
125	170	0.6	1.0	6x6
150	170	0.6	1.0	6x6
200	220	0.6	1.0	8x8
250	270	0.8	1.2	8x8
300	320	0.8	1.2	10x10
350	400	1.0	1.5	10x10
400	450	1.0	1.5	10x10

Size Limitations:

- **Minimum Diameter Size :** DN 4" (100mm)
- **Maximum Diameter Size:** DN 16" (400mm)

Ordering example:
VCD 300
Code
Diameter

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ALUMINUM CIRCULAR VOLUME CONTROL DAMPERS

Types:

ALVCD shall be installed between 2 pieces of Circular Ducts or Plenum Box. **ALVCD** with normal sizes of 100 to 350mm, are Circular Control Dampers to adjust Air Volume Flow rates in Air Conditioning and Ventilation Systems.

Standard Construction

- **Casing:** Shall be made of Aluminum complying with ASTM B209, Alloy 3003, Temper H14.

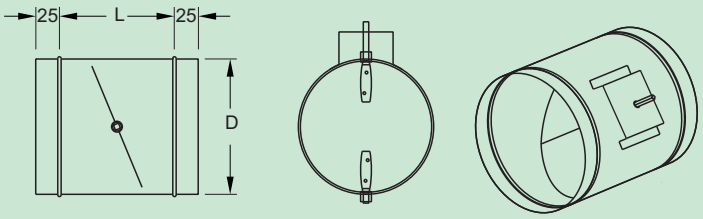
- **Blades**: Shall be made of Aluminum complying with ASTM B209, Alloy 3003, Temper H14.

- **Quadrant**: Shall be made of Galvanized Steel 16 Gauge (1.5mm) thickness with integral rotation slot indicating blade Open & Close position.

- **Axles**: 1/2" x 1/2" (12x12mm) zinc plated square mild steel.

- **Bearings:** Synthetic (acetal) Sleeve Type.

Circular Volume Control Damper
Code: ALVCD is fabricated of Aluminum



ALVCD is to be installed between two pieces of circular ducts or plenum box
The damper is designed without a seal (Approximately 3mm clearance all around).

Ratings

Pressure	up to 1.0 in	up to 0.25 kPa
Velocity	2000 fpm	10.2 m/s
Temperature	-40°F to 212°F	-40°C to + 100°C

Selection of Actuators

Actuators are selected by torque requirement and application type in relation to the size of the damper.

Dia. of Dampers	Torque of Actuators	Type of Actuators
up to 300mm	5 Nm	- On / Off - Spring Return - Modulating
up to 400mm	10 Nm	

Aluminum Circular Damper Dimensions and Thickness

Diameter Sizes (mm)	Length (mm)	Casing Thickness (mm	Blade Thickness (mm)	Axle and Bearing (mm)
100	170	0.6	1.0	6x6
125	170	0.6	1.0	6x6
150	170	0.6	1.0	6x6
200	220	0.6	1.0	8x8
250	270	0.8	1.2	8x8
300	320	0.8	1.2	10x10
350	400	1.0	1.5	10x10
400	450	1.0	1.5	10x10

Size Limitations:

- **Minimum Diameter Size :** DN 4" (100mm)
- **Maximum Diameter Size:** DN 16" (400mm)

Ordering example:
ALVCD 300
Code
Diameter

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PRE- INSTALLATION GUIDELINES

The basic Intent of a proper installation is to secure the volume control damper into the opening in such a manner as to prevent distortion and disruption of damper operation.
The following check list will help in completing the damper installation in a timely and effective manner.:

1) Check the schedules for proper damper locations within the building. Visually inspect the damper for damage.

2) Lift or handle damper using sleeve or frame; do not lift damper using blades, linkage, actuators or jack shafting. When handling multiple sections assemblies, use sufficient support to evenly lift at each section mullion. Do not drag, step on, apply excessive bending, twisting or racking.

3) Do not install screws in damper frame that will interfere with unexposed blade linkage and prevent damper blades from opening and/or closing.

4) Damper must be installed into duct or opening square and free of twist or other misalignment. Damper must not be squeezed or stretched into duct or opening. Out of square, racked, twisted or misaligned installations can cause excessive leakage and/or torque requirements to exceed damper/actuator design.

5) Damper and actuator must be kept clean, dry and protected from dirt, dust and other foreign materials prior to and after installation, such as mortar dust, dry wall dust, wall texture, firesafing materials, paint overspray.

6) Damper should be sufficiently covered as to prevent overspray if wall texturing or spray painting will be performed within 5 feet (1.50m) of the damper. Excessive dirt or foreign material deposits on damper can cause excessive leakage and/or torque requirements to exceed damper/actuator design.

7) ACCESS: Suitable access (actuators maintenance, etc..) must be provided for damper inspection and servicing. Where it will not be possible to achieve sufficient size access, it will be necessary to install a removable section of duct.

INSTALLATION SUGGESTIONS

1) It is very important to follow the instructions provided by manufacturer upon supply.

2) Before to start the installation, we must ensure that the damper is not damaged and the blades operate freely.

3) Considerate enough space on the sides of the damper for ascending an actuator (if required)

4) Install the damper "flat & square" as per below warnings. Carry out final field adjustment to blade linkages, ensuring that damper close tightly and tighten all sets-crews.

5) Check run of damper and actuator assembly (if VCD is motorized), then attach other end of duct work to damper.

Warnings:

* If dampers are not installed properly it prevent blades from sealing

* Gaps between the blades and frame indicate that damper is installed "out of square" or "out of flat"

* Those misalignments shall augment the leakage and can result in blade-to-linkage bind or non-closure of blades. Thus, overloading the damper actuator or render it inoperative.

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MAINTENANCE

DVAC Dampers are designed to be trouble free and hassle free under normal operation. Dampers are to be installed square and straight so as to prevent binding during operation. The following annual damper maintenance suggestions will help to ensure proper damper operation and increase the life expectancy of the damper.

Foreign Matter: With the time, dirt and grime may accumulate on damper surfaces. The damper surfaces should be cleaned to prevent hindrance to airflow.

Moving Parts : Make sure that parts such as linkage, bearings, blades, etc. that are intended to move freely, can do so. Lubricating these components can prevent possible rusting and unnecessary friction increase. Use only a moli-spray oil or similar graphite based oil as regular lubricating oil will attract dirt. Bearings, Synthetic, oil impregnated (without grease fittings) do not require lubrication.

Closure : Remove foreign materials that may be interfering with blade closure or effective sealing of the blades with each other or with the frame.

Operation : While operating the damper through its full cycle, check to see that the blades open and close properly. If there is a problem, check for loose linkage, especially at the actuator. Tighten the linkage where required.

MAINTENANCE CHECK LIST:

1) Observe Damper motors and actuators through an operate cycle to check for defects or binding. All mounting bolts must be securely fastened.
2) Linkages from actuators should be adjusted to insure blades of damper fully open or close within the stroke or travel of the actuator arm.
3) Blades should be checked in closed position to be sure all close tightly. If necessary, adjustments should be made to damper linkage or linkages to close any partially open blades.
4) Damaged blades should be replaced. Dirt, soot lint, etc... Should be removed especially around operating parts.
5) Check blade edge and side seals. Replace where necessary.
6) Check pins, straps, bearings for wear, rust or corrosion. Replace as required.
7) Lubricate all mechanism and moving parts.
8) Caulking, where used to make damper frames tight to structure, should be checked and repaired as needed.

TROUBLESHOOTING

Warning Sign	Possible Cause	Corrective Action
Damper Does not Fully Open and/or Fully Close	Frame is “racked” causing blades to bind on jamb seals	adjust frame such that it is square and plumb
	Actuator linkage loose	Close damper, disconnect power, adjust and tighten linkage
	Defective motor	Replace
	Screws in damper linkage	Locate Screws and remove
	Actuator linkage hitting wall or floor	Damper installed too far into wall. Move out to line designated on damper label
	Contaminants on damper	Clean with a non-oil based solvent (see Damper Maintenance)
Actuator Runs Hot or makes a Humming Noise	Actuator prohibited from reaching end of stroke	Disconnect linkage from jackshaft, open damper, power actuator to end of spring, tighten linkage.

ISO 9001: 2015 0603-1

OHSAS 18001:2007 0603-1

ISO 14001:2015 0603-1

DUCT VENTILATION AIR CONDITIONING Co. (W.L.L.)

Small Industries Zone - Pink Area Zone 81 - Street 13 - Bldg. 57
Tel: +974 44 500 118 - 44 500 119 - 33 369 119 - Fax: +974 44 500 117 - PO. Box: 55619
Doha, State Of Qatar - Email: info@dvac-duct.com - Website: www.dvac-duct.com

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