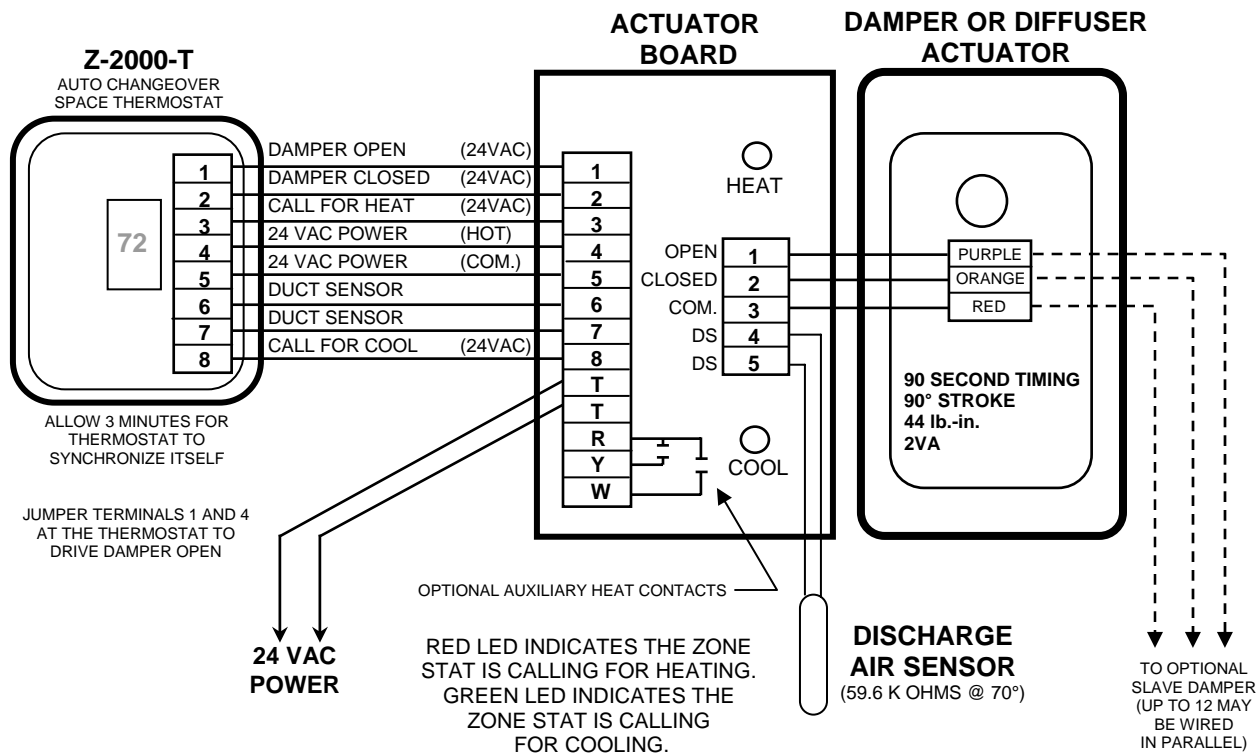


Zone One™

Modulating Stand-Alone Zone Damper Assembly



SEQUENCE OF OPERATION:

The automatic changeover duct sensor (located on the Zone One™ damper) senses whether there is warm air or cool air in the branch supply duct. If the Zone One™ thermostat is calling for cooling and the duct sensor determines there is cool air in the duct, the damper will modulate open. If the Zone One™ thermostat is calling for heating and the duct sensor determines there is warm air in the duct, the damper will modulate open.

The green LED located on the actuator board indicates when the damper is calling for cooling. The red LED located on the actuator board indicates when the damper is calling for heating.

APPLICATION AND INSTALLATION NOTES:

Use standard 18 gauge thermostat wire.

Actuator requires a 24 VAC 40 VA transformer.

The actuator board is located on the side of the damper.

The Z-1600-T, P+I space thermostat can control a maximum of 12 damper actuators wired in parallel.

If the discharge air at the damper is warmer than 72° F, the zone damper will operate as a heating damper.

If the discharge air at the damper is colder than 72° F, the zone damper will operate as a cooling damper.

If the Zone One™ dampers are used to zone more than 30% of the area served by the HVAC system, a bypass damper may be required to maintain constant system static pressure.

The HVAC unit should be controlled by its own space thermostat or discharge air controller. When a space thermostat is used to control the HVAC equipment, it is important that at least 30% of the system load be controlled by this thermostat. The HVAC unit thermostat must never be located in an area served by a Zone One™.

A suction line freeze stat (FS-38) should be installed to protect the equipment in the event the suction line temperature drops too low (wire in series with cooling control circuit).

TESTING:

Disconnect the discharge air sensor to put the thermostat in the cooling mode. Turn the thermostat down and the damper should open.

Short the discharge air sensor to put the thermostat in the heating mode. Turn the thermostat up and the damper should open.

ZONE ONE™ MODULATING ZONE THERMOSTAT WITH AUTO CHANGEOVER



DISASSEMBLING THERMOSTAT

To separate the thermostat from the backplate, hold the front of the thermostat with right hand. Use the thumbnail of left hand to hook the extremely small rounded tab located on the top edge of the thermostat backplate and pull apart.

PUSH BUTTON FUNCTIONS

Press the **ON** button to activate the thermostat.

Press the **OFF** button to deactivate the thermostat. This will also drive the zone damper closed.

The **C/F** button switches the display between Fahrenheit and Celsius.

THERMOSTAT DISPLAY

The thermostat continuously displays room temperature.

If the thermostat calls for heating, "HEAT" will flash on the display. If the thermostat calls for cooling, "COOL" will flash on the display.

Setpoint limits are factory preset from 68° F to 76° F. It is recommended that these setpoint limits not be exceeded.

DISCHARGE AIR SENSOR

A discharge air sensor is supplied with each thermostat. The purpose of the discharge air sensor is to select the mode of operation of the damper. If the discharge air temperature is above 72° F, the damper will open on a call for heating. If the discharge air temperature is below 72° F, the damper will open on a call for cooling.

TESTING DISCHARGE SENSOR

Disconnecting the discharge air sensor will put the thermostat in the cool mode. Shorting out the sensor will put the thermostat in the heat mode.

TERMINAL DESIGNATIONS

TERMINAL NUMBER	TERMINAL DESCRIPTION
1	OPEN DAMPER (24 VOLTS OUT)
2	CLOSE DAMPER (24 VOLTS OUT)
3	HEAT OUTPUT (24 VOLTS OUT)
4	HOT (24 VOLTS IN)
5	COMMON (24 VOLTS IN)
6	DUCT SENSOR
7	DUCT SENSOR
8	COOL OUTPUT (24 VOLTS OUT)

SETTING THERMOSTAT LIMITS

1. Set the setpoint as low as it will go.
2. Press and hold the C/F button until the stat beeps and the word "COOL" flashes.
3. Use the (+) or (-) button to adjust the cooling limit.
4. Press the C/F button again until the stat beeps and the word "HEAT" flashes.
5. Use the (+) or (-) button to adjust the heating limit.
6. Press the C/F button again until the stat beeps and the word "AUX" flashes.
7. This is to adjust the thermostat calibration.
8. Press the C/F button again to exit program.

ZONE ONE™

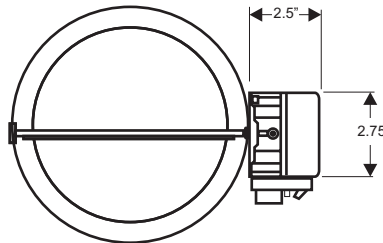
ZD-XX SERIES ZONE CONTROL DAMPER SPECIFICATIONS

APPLICATION:

The model ZD-XX is a round commercial zone control damper assembly that includes a damper, modulating actuator, duct temperature sensor, and actuator control board. The ZD-XX zone damper is used with a Z-2000-T, P+I zone thermostat.

AVAILABLE SIZES:

Diameters: 6", 8", 10", 12", 14", 16", 18", 20"
Length: 6" - 10" diameter = 10"
 12" diameter = 13"
 14" - 20" = 14"



DAMPER SIZE	"A" DIMENSION
6"	10"
8"	10"
10"	10"
12"	13"
14"	14"
16"	14"
18"	14"
20"	14"

CONSTRUCTION:

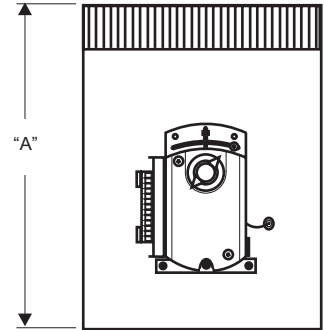
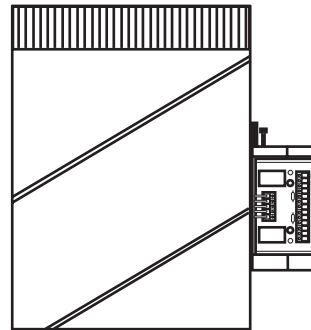
Shell Material: 18 gauge spiral steel
Damper Material: 18 gauge
Shaft: 1/2" aluminum

AIR FLOW & PRESSURE:

Max static pressure: 2 inches w.c.
Max velocity: 2,000 fpm
CFM: 0 - 4,000 cfm

DAMPER ACTUATOR:

24 VAC, 2VA, 3-wire floating point actuator



OPERATION:

Continually regulates supply air volume in response to Z-2000-T thermostat control

COMPONENTS:

Damper, actuator, PC board and discharge air sensor

AIR HANDLER CONTROL:

Space thermostat
 Discharge air controller

WARRANTY:

Damper: 5 Years

Drawings are intended to show general, overall product dimensions and provide guidance for installation clearance. Drawings are not to scale. Jackson Systems reserves the right to make product changes without notification or obligation.

ZONE ONE™

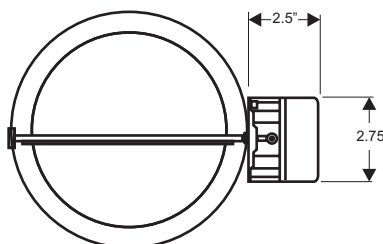
SD-XX SERIES ZONE CONTROL DAMPER SPECIFICATIONS

APPLICATION:

The model SD-XX is a round commercial auxiliary zone control damper assembly that includes a damper and modulating actuator. The SD-XX zone damper can be used as an auxiliary damper when wired to a ZD damper actuator in applications where more than one damper is required in a single zone.

AVAILABLE SIZES:

Diameters: 6", 8", 10", 12", 14", 16", 18", 20"
Length: 6" - 10" diameter = 10"
 12" diameter = 13"
 14" - 20" = 14"



DAMPER SIZE	"A" DIMENSION
6"	10"
8"	10"
10"	10"
12"	13"
14"	14"
16"	14"
18"	14"
20"	14"

CONSTRUCTION:

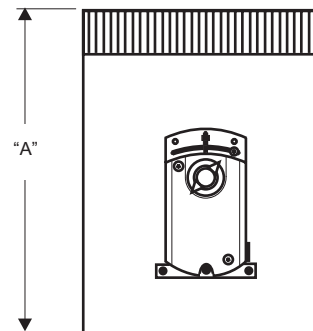
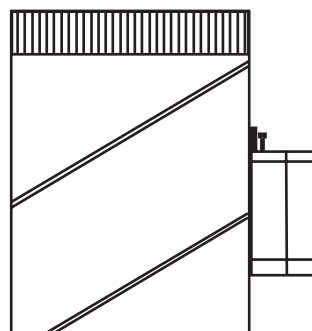
Shell Material: 18 gauge spiral steel
Damper Material: 18 gauge
Shaft: 1/2" aluminum

AIR FLOW & PRESSURE:

Max static pressure: 2 inches w.c.
Max velocity: 2,000 fpm
CFM: 0 - 4,000 cfm

DAMPER ACTUATOR:

24 vac, 2va, 3-wire floating point actuator



COMPONENTS:

Damper and actuator

AIR HANDLER CONTROL:

Space thermostat
 Discharge air controller

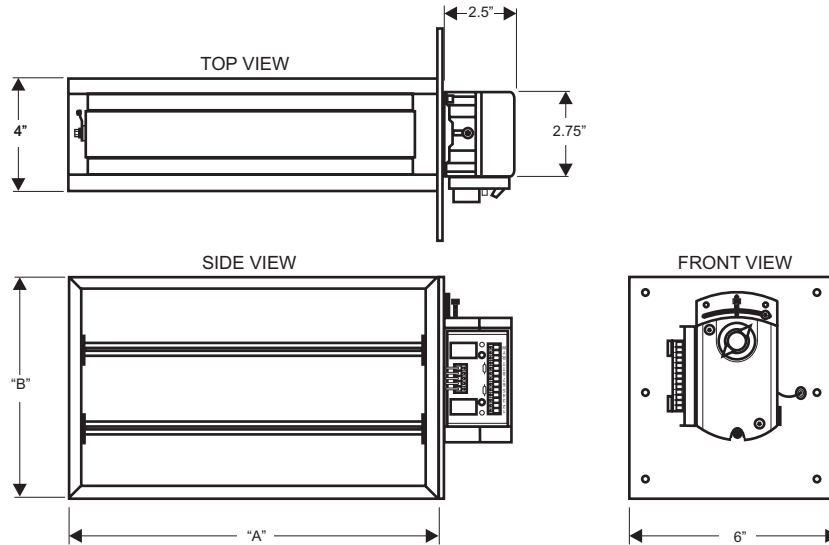
WARRANTY:

Damper: 5 Years

Drawings are intended to show general, overall product dimensions and provide guidance for installation clearance. Drawings are not to scale. Jackson Systems reserves the right to make product changes without notification or obligation.

ZONE ONE™

ZD-XXXX SERIES ZONE CONTROL DAMPER SPECIFICATIONS



APPLICATION:

The model ZD-XXXX is a rectangular commercial zone control damper assembly that includes a damper, modulating actuator, duct temperature sensor, and actuator control board. The ZD-XXXX zone damper is used with a Z-2000-T, P+I zone thermostat.

AVAILABLE SIZES:

Side mount models are sized width (A) by height (B) with actuator on the (B) dimension. Bottom mount models are sized width (A) by height (B) with actuator on the (A) dimension. (A) and (B) dimensions are undercut 1/4". Standard sizes range from 8" x 8" up to 36" x 24" in 2" increments.

CONSTRUCTION:

Frame: 1/16" extruded aluminum
Blades: 1/16" extruded aluminum (parallel design)
Flange: 1/16" aluminum
Shaft: 1/2" aluminum
Bushings: Nylon

AIR FLOW & PRESSURE:

Max static pressure: 2 inches w.c.
Max velocity: 2,000 fpm
CFM: 0 - 4000 cfm

DAMPER ACTUATOR:

24 vac, 2va, 3-wire floating point actuator

OPERATION:

Continually regulates supply air volume in response to Z-2000-T thermostat control

COMPONENTS:

Damper, actuator, PC board and discharge air sensor

AIR HANDLER:

Space thermostat
 Discharge air controller

WARRANTY:

5 Years

Drawings are intended to show general, overall product dimensions and provide guidance for installation clearance. Drawings are not to scale. Jackson Systems reserves the right to make product changes without notification or obligation.

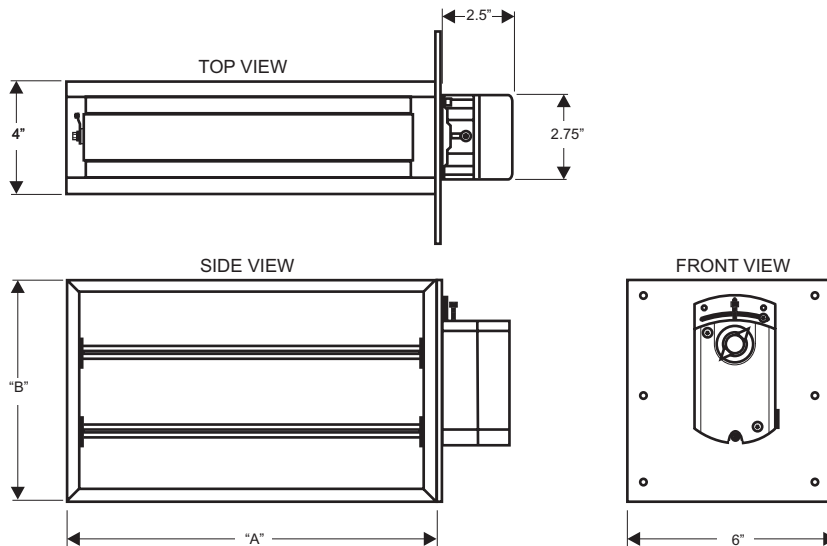
Jackson
 SYSTEMS
 Zone Control Made Simple™

5418 Elmwood Avenue, Indianapolis, IN 46203-6025
 Toll Free: 888.652.9663 Fax: 317.227.1034
www.jacksonsystems.com

08-1049-012808

ZONE ONE™

SD-XXXX SERIES ZONE CONTROL DAMPER SPECIFICATIONS



APPLICATION:

The model SD-XXXX is a rectangular commercial auxiliary zone control damper assembly that includes a damper and modulating actuator. The SD-XXXX can be used as an auxiliary damper when wired to a ZD damper actuator in applications where more than one damper is required in a single zone.

AVAILABLE SIZES:

Side mount models are sized width (A) by height (B) with actuator on the (B) dimension. Bottom mount models are sized width (A) by height (B) with actuator on the (A) dimension. (A) and (B) dimensions are undercut 1/4". Standard sizes range from 8" x 8" up to 36" x 24" in 2" increments.

CONSTRUCTION:

- Frame:** 1/16" extruded aluminum
- Blades:** 1/16" extruded aluminum (parallel design)
- Flange:** 1/16" aluminum
- Shaft:** 1/2" aluminum
- Bushings:** Nylon

AIR FLOW & PRESSURE:

- Max static pressure:** 2 inches w.c.
- Max velocity:** 2,000 fpm
- CFM:** 0 - 4000 cfm

DAMPER ACTUATOR:

24 vac, 2va, 3-wire floating point actuator

OPERATION:

Continually regulates supply air volume in response to Z-2000-T thermostat control

COMPONENTS:

Damper and actuator

AIR HANDLER:

Space thermostat
Discharge air controller

WARRANTY:

5 Years

Drawings are intended to show general, overall product dimensions and provide guidance for installation clearance. Drawings are not to scale. Jackson Systems reserves the right to make product changes without notification or obligation.

ZONE ONE™

VD-XX VAV FULLY MODULATING DIFFUSER SPECIFICATIONS

APPLICATION:

The Model VD-XX VAV Comfort System™ Diffuser is used to vary the supply air volume from a wall-mounted thermostat. The diffuser is designed to maintain the coanda effect (draft free) of discharge air along the ceiling, providing a sustained discharge velocity throughout the volume range. The Comfort System™ VAV Diffuser with a Z-2000-T, P+I zone thermostat.

AVAILABLE SIZES:

Face Size: 24" X 24"

Neck Size: 6", 8" for 12" x 12" face size
6", 8", 10", 12", 14" for 24" x 24" face size

CONSTRUCTION:

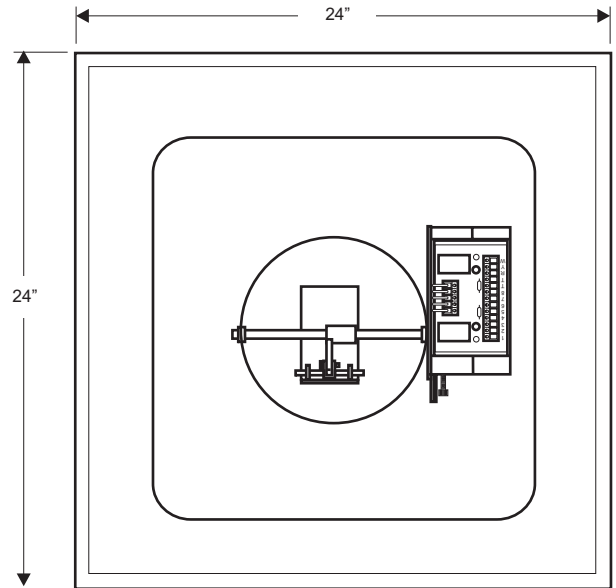
Face Plate: Removable 18 gauge steel with baked white enamel finish

Back Cone: Unitary stamped 18 gauge steel

OPERATION:

Diffuser: Integral modulating disk that continually regulates supply air volume in response to thermostat control

Air Volume Range: 118 to 710 CFM

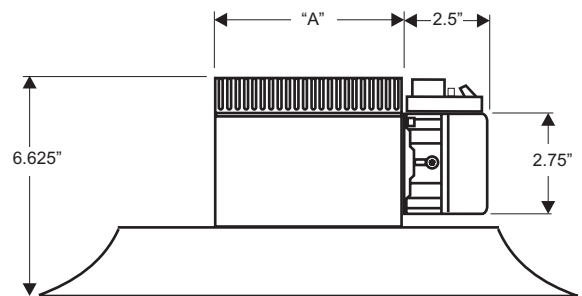


DIFFUSER ACTUATOR:

24 VAC, 2VA, 3-wire floating point actuator

COMPONENTS:

Diffuser, actuator, PC board and discharge air sensor



AIR HANDLER CONTROL:

Space thermostat
Discharge air controller

WARRANTY:

5 Years

Drawings are intended to show general, overall product dimensions and provide guidance for installation clearance. Drawings are not to scale. Jackson Systems reserves the right to make product changes without notification or obligation.

ENGINEERING DATA

Zone One™ 24" x 24" VD-XX VAV Diffuser

Part Number and Neck Size	Neck Velocity (FPM)	300	400	500	600	700	800	900	1000	1200	1400
	Velocity Pressure	0.006	0.01	0.016	0.022	0.031	0.04	0.051	0.062	0.09	0.122
VD-06 6" Ak = 0.19	Airflow (CFM)	60	80	100	120	140	160	180	200	240	280
	Total Pressure	0.009	0.011	0.017	0.025	0.034	0.044	0.057	0.070	0.100	0.135
	Horizontal Throw	1-1-2	1-1-4	1-2-4	1-3-5	2-3-6	2-4-7	3-4-8	3-4-9	4-5-11	4-6-11
	Noise Criteria	<15	<15	<15	<15	<15	<15	17	21	28	34
VD-08 8" Ak=0.26	Airflow (CFM)	105	140	175	210	245	280	315	350	420	490
	Total Pressure	0.011	0.018	0.028	0.040	0.055	0.072	0.091	0.112	0.162	0.220
	Horizontal Throw	1-2-4	2-3-6	2-4-7	3-4-9	3-5-10	4-6-12	4-6-12	5-7-13	6-9-14	7-10-15
	Noise Criteria	<15	<15	<15	<15	<15	17	21	25	32	38
VD-10 10" Ak=0.34	Airflow (CFM)	165	220	275	330	385	440	495	550	660	770
	Total Pressure	0.017	0.029	0.043	0.060	0.082	0.108	0.136	0.168	0.243	0.331
	Horizontal Throw	2-3-7	3-4-8	3-5-10	4-6-12	5-7-13	5-8-14	6-9-15	7-10-16	8-12-18	10-13-19
	Noise Criteria	<15	<15	<15	<15	15	20	24	28	35	41
VD-12 12" Ak=0.40	Airflow (CFM)	240	310	390	470	550	630	710	790	940	1100
	Total Pressure	0.023	0.037	0.059	0.085	0.115	0.151	0.191	0.237	0.338	0.461
	Horizontal Throw	2-4-7	4-5-11	5-7-14	5-8-15	6-9-16	7-11-17	8-12-18	9-14-19	11-15-21	13-16-23
	Noise Criteria	<15	<15	<15	<15	18	23	27	31	38	43
VD-14 14" Ak=0.51	Airflow (CFM)	320	430	530	640	750	860	960	1070	1280	1500
	Total Pressure	0.031	0.050	0.078	0.114	0.155	0.202	0.256	0.316	0.453	0.619
	Horizontal Throw	3-4-8	4-7-13	6-8-16	7-10-17	8-12-19	9-13-20	10-15-21	11-16-23	13-17-25	15-19-27
	Noise Criteria	<15	<15	<15	<15	20	25	29	33	40	45

Notes:

1. Tests conducted in accordance with ANSI/ASHRAE 70-1991 at isothermal conditions.
2. Tests conducted with a straight rigid inlet condition. Other inlet conditions may alter performance.
3. Units: Total Pressure = in. wc; Velocity Pressure = in. wc; Effective Area (Ak) = ft.².
4. Throw - feet at 150 fpm, 100 fpm and 50 fpm terminal velocities.
5. NC is based upon 10dB room absorption (Re: 10⁻¹² watts) evaluated at 125 thru 4000 Hz octave bands.
6. Flow hoods are recommended for system balancing.

ZONE ONE™

VD-XX-SD VAV FULLY MODULATING AUXILIARY DIFFUSER SPECIFICATIONS

APPLICATION:

The Model VD-XX-SD VAV Comfort System™ Diffuser includes a diffuser and modulating actuator. The VD-XX-SD can be used as an auxiliary damper when wired to a VD-XX difuser actuator in applications where more than one diffuser is required in a single zone.

AVAILABLE SIZES:

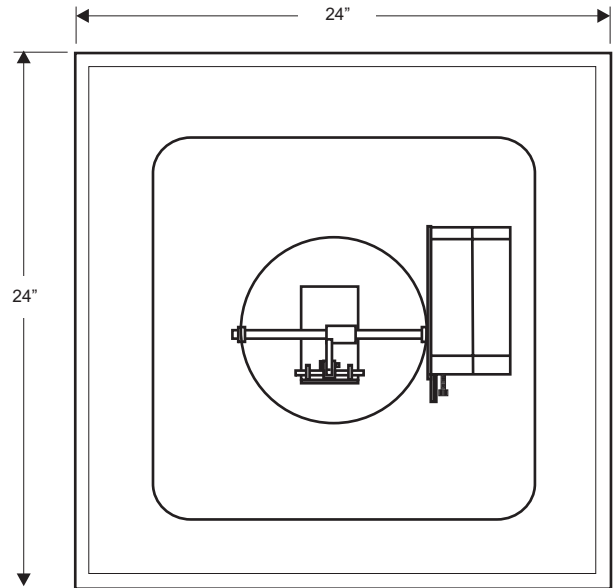
Face Size: 24" X 24"
Neck Size: 6", 8" for 12" x 12" face size
 6", 8", 10", 12", 14" for 24" x 24" face size

CONSTRUCTION:

Face Plate: Removable 18 gauge steel with baked white enamel finish
Back Cone: Unitary stamped 18 gauge steel

OPERATION:

Diffuser: Integral modulating disk that continually regulates supply air volume in response to thermostat control
Air Volume Range: 118 to 710 CFM



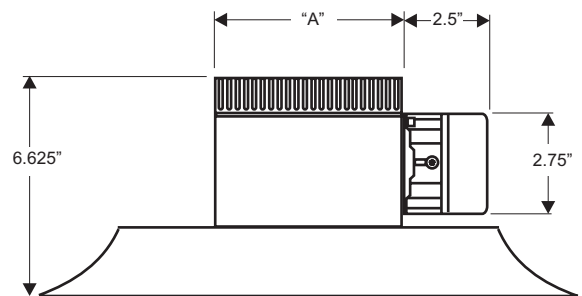
TOP VIEW

DIFFUSER ACTUATOR:

24 VAC, 2VA, 3-wire floating point actuator

COMPONENTS:

Diffuser and actuator



SIDE VIEW

AIR HANDLER CONTROL:

Space thermostat
 Discharge air controller

WARRANTY:

5 Years

Drawings are intended to show general, overall product dimensions and provide guidance for installation clearance. Drawings are not to scale. Jackson Systems reserves the right to make product changes without notification or obligation.

ENGINEERING DATA

Zone One™ 24" x 24" VD-XX-SD Auxiliary VAV Diffuser

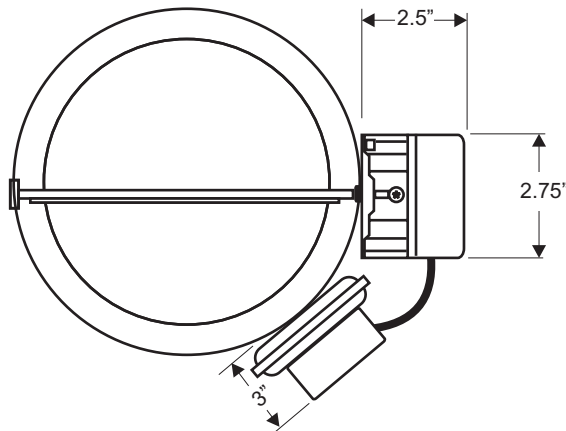
Part Number and Neck Size	Neck Velocity (FPM)	300	400	500	600	700	800	900	1000	1200	1400
	Velocity Pressure	0.006	0.01	0.016	0.022	0.031	0.04	0.051	0.062	0.09	0.122
VD-06-SD 6" Ak = 0.19	Airflow (CFM)	60	80	100	120	140	160	180	200	240	280
	Total Pressure	0.009	0.011	0.017	0.025	0.034	0.044	0.057	0.070	0.100	0.135
	Horizontal Throw	1-1-2	1-1-4	1-2-4	1-3-5	2-3-6	2-4-7	3-4-8	3-4-9	4-5-11	4-6-11
	Noise Criteria	<15	<15	<15	<15	<15	<15	17	21	28	34
VD-08-SD 8" Ak=0.26	Airflow (CFM)	105	140	175	210	245	280	315	350	420	490
	Total Pressure	0.011	0.018	0.028	0.040	0.055	0.072	0.091	0.112	0.162	0.220
	Horizontal Throw	1-2-4	2-3-6	2-4-7	3-4-9	3-5-10	4-6-12	4-6-12	5-7-13	6-9-14	7-10-15
	Noise Criteria	<15	<15	<15	<15	<15	17	21	25	32	38
VD-10-SD 10" Ak=0.34	Airflow (CFM)	165	220	275	330	385	440	495	550	660	770
	Total Pressure	0.017	0.029	0.043	0.060	0.082	0.108	0.136	0.168	0.243	0.331
	Horizontal Throw	2-3-7	3-4-8	3-5-10	4-6-12	5-7-13	5-8-14	6-9-15	7-10-16	8-12-18	10-13-19
	Noise Criteria	<15	<15	<15	<15	15	20	24	28	35	41
VD-12-SD 12" Ak=0.40	Airflow (CFM)	240	310	390	470	550	630	710	790	940	1100
	Total Pressure	0.023	0.037	0.059	0.085	0.115	0.151	0.191	0.237	0.338	0.461
	Horizontal Throw	2-4-7	4-5-11	5-7-14	5-8-15	6-9-16	7-11-17	8-12-18	9-14-19	11-15-21	13-16-23
	Noise Criteria	<15	<15	<15	<15	18	23	27	31	38	43
VD-14-SD 14" Ak=0.51	Airflow (CFM)	320	430	530	640	750	860	960	1070	1280	1500
	Total Pressure	0.031	0.050	0.078	0.114	0.155	0.202	0.256	0.316	0.453	0.619
	Horizontal Throw	3-4-8	4-7-13	6-8-16	7-10-17	8-12-19	9-13-20	10-15-21	11-16-23	13-17-25	15-19-27
	Noise Criteria	<15	<15	<15	<15	20	25	29	33	40	45

Notes:

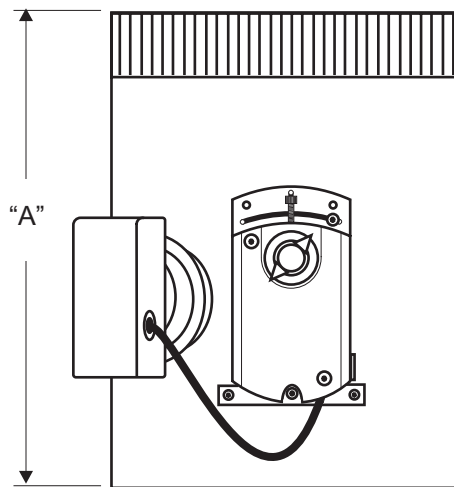
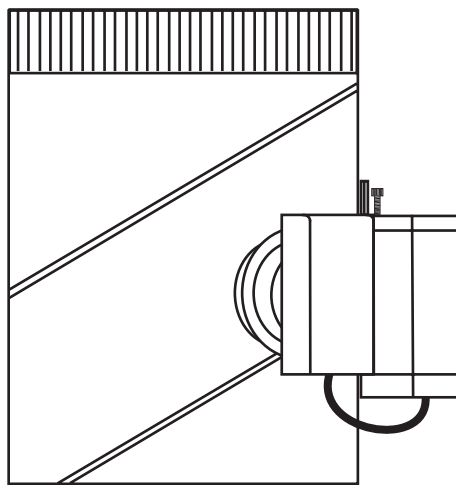
1. Tests conducted in accordance with ANSI/ASHRAE 70-1991 at isothermal conditions.
2. Tests conducted with a straight rigid inlet condition. Other inlet conditions may alter performance.
3. Units: Total Pressure = in. wc; Velocity Pressure = in. wc; Effective Area (Ak) = ft.².
4. Throw - feet at 150 fpm, 100 fpm and 50 fpm terminal velocities.
5. NC is based upon 10dB room absorption (Re: 10⁻¹² watts) evaluated at 125 thru 4000 Hz octave bands.
6. Flow hoods are recommended for system balancing.

ZONE ONE™

EB-XX Round, Electronic Bypass Damper Specifications



DAMPER SIZE	"A" DIMENSION
12"	13"
14"	14"
16"	14"
18"	14"
20"	14"



SPECIFICATIONS

DIMENSIONS:

Damper models EB-XX are available in standard sizes from 12" to 20"

APPLICATION:

Compatible for zone control and other HVAC applications in maintaining system static pressure from 0.2" to 2.0" w.c.

CONSTRUCTION:

- 18 gauge spiral steel shell
- 18 gauge steel blade
- 1/2" aluminum shaft
- Nylon bushings
- Air tight blade seals
- Minimum position adjustment

FACTORY MOUNTED STATIC PRESSURE CONTROL:

- 1/4" I.D. flex hose connection
- Tubing and plastic pressure probe included
- Solid state control design
- Built-in LED for damper direction
- 0.2" to 2.0" w.c. pressure range
- 0.5 PSI maximum pressure
- 1 Amp switching current at 24 VAC

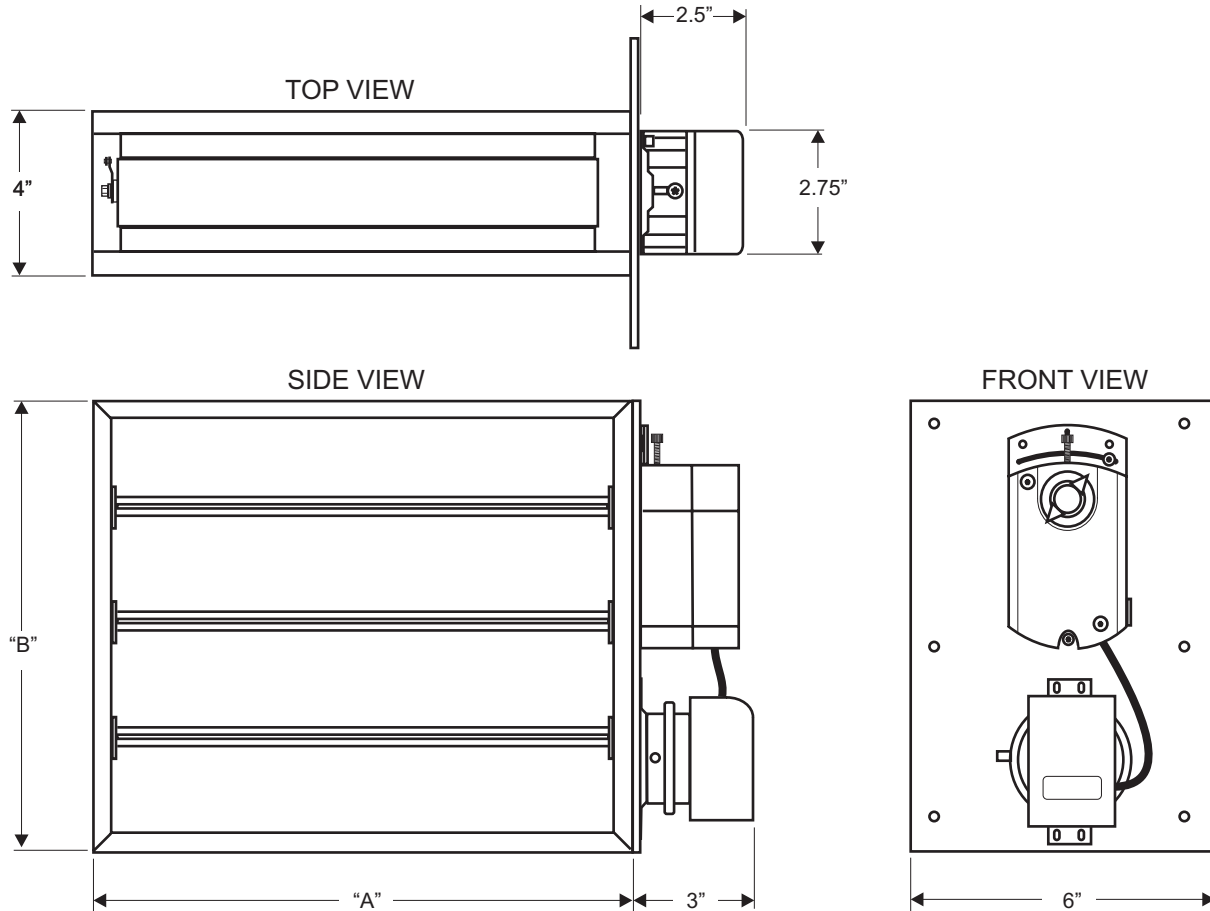
ELECTRICAL:

- 24 Volt, 2 VA, floating point
- 90 second timing
- 44 lb.-in.

Drawings are intended to show general, overall product dimensions and provide guidance for installation clearance. Drawings are not to scale. Jackson Systems reserves the right to make product changes without notification or obligation.

ZONE ONE™

EB-XXXX Rectangular, Electronic Bypass Damper Specifications



SPECIFICATIONS

DIMENSIONS:

Damper models EB-XXXX are sized width (A) by height (B) with actuator on the (B) dimension. Actual (A) and (B) dimensions are undercut 1/4". Standard sizes range from 8" x 8" up to 36" x 24" in 2" increments.

APPLICATION:

Compatible for zone control and other HVAC applications in maintaining system static pressure from 0.2" to 2.0" w.c.

CONSTRUCTION:

- 1/16" extruded aluminum frame
- 1/16" extruded aluminum parallel blades
- 1/16" aluminum mounting flange
- Nylon bushings
- Minimum position adjustment

ELECTRICAL:

- 24 Volt, 2 VA, floating point
- 90 second timing
- 44 lb.-in.

STATIC PRESSURE CONTROL:

- Factory mounted on "B" dimensions 14" and up
- 1/4" I.D. flex hose connection
- Tubing and plastic pressure probe included
- Solid state control design
- Built-in LED for damper direction
- 0.2" to 2.0" s.c. pressure range
- 0.5 PSI maximum pressure
- 1 Amp switching current at 24 VAC

Drawings are intended to show general, overall product dimensions and provide guidance for installation clearance. Drawings are not to scale. Jackson Systems reserves the right to make product changes without notification or obligation.