

## ZDD25 VAV COMFORT SYSTEM DIFFUSER

### APPLICATION

Ruskin Model ZDD25 diffuser damper is used to vary the supply air volume from a Z2000RT wall-mounted thermostat. The diffuser is designed to maintain the coanda effect of discharge air along the ceiling. This provides a sustained discharge velocity throughout the volume range. Operating the diffuser from an individual wall-mounted thermostat enables users to choose their own desired comfort level. When there is more than one diffuser in a zone, subsequent diffusers can be operated by the same thermostat. The primary ZDD25 is connected to the thermostat and subsequent tracer units are wired to the primary logic board. Up to three additional diffusers can be wired to the primary diffuser logic board. All units modulate together to maintain the zone temperature.

### STANDARD CONSTRUCTION

#### DIFFUSER AND FACE PLATE ASSEMBLY

18 gage (1.2) galvanized steel with removable face plate

#### DIFFUSER AND FACE PLATE FINISH

White baked enamel

#### DAMPER FRAME

Unitary stamped 18 gage (1.2) galvanized steel

#### DAMPER BLADE

Integral modulating disk responding to thermostat control

#### AIR VOLUME RANGE

60 to 1,500 CFM (28 to 708 l/s)

#### ACTUATOR

3-wire 24 VAC, 50/60Hz, 3.3 VA floating point

44 lb-in. (5 Nm)

UL873, cUL C22.2 No. 24-93

#### THERMOSTAT

Model Z2000RT

#### AVAILABLE DAMPER SIZE

6", 8", 10", 12" and 14" (152, 203, 254, 305, 356) "D" - diameter  
(24" x 24" [610 x 610] diffuser)

### PACKAGE CONTENTS

- Diffuser with integral damper
- Factory mounted actuator with logic board
- Integral temperature sensor
- Z2000RT wall thermostat
- Installation Instructions

**NOTE:** Dimensions shown in parentheses ( ) indicate millimeters.



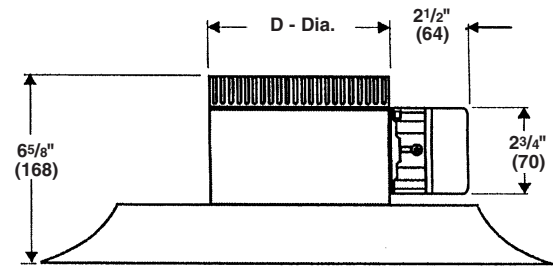
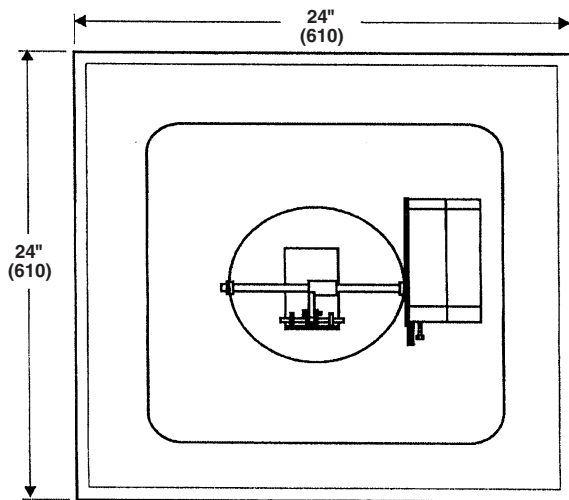
### FEATURES

- Wall-mounted thermostatic control for standalone applications
- Communicates with Z2000 control panel for HVAC applications
- True variable air volume (VAV) in heating and cooling modes
- Suitable for lay-in ceilings
- Adjustable minimum and maximum air flows
- Unitary stamped seamless backbone with removable face plate

### VARIATIONS

- Tracer control package (omit logic board, sensor & wall stat)  
The tracer damper copies the primary damper blade position.  
Wire to a primary damper logic board for larger zones.

## DIMENSIONAL DETAILS



## ENGINEERING DATA

Damper 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
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
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
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
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
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:

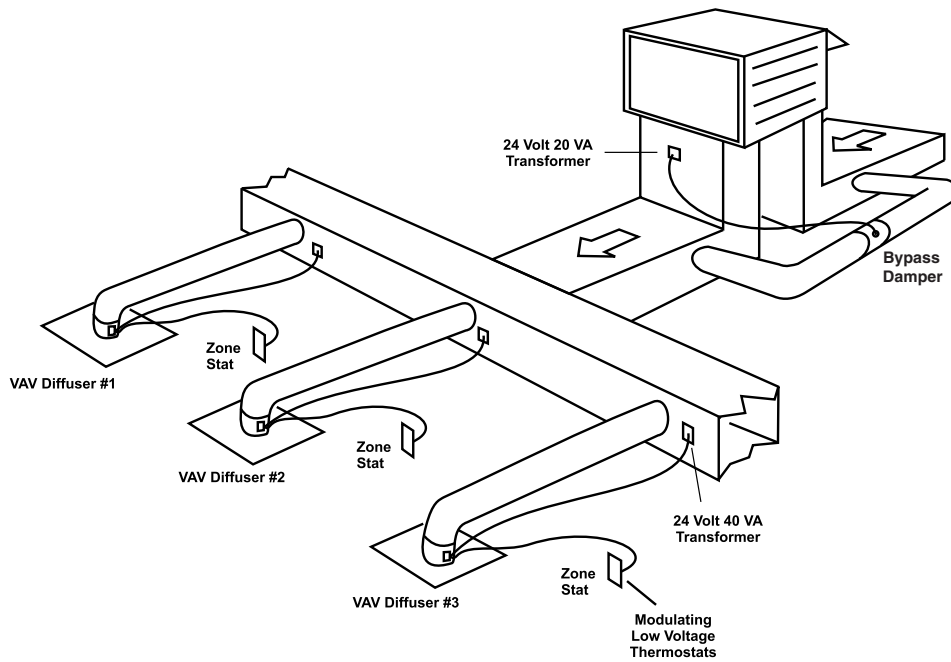
1. Tests conducted in accordance with ANSI/ASHRAE 70-1991 at isothermal conditions.
2. Tests conducted with a straight rigid inlet condition. Other inlet conditions may alter performance.
3. Units: Total Pressure = in. wc; Velocity Pressure = in. wc; Effective Area (Ak) = ft.<sup>2</sup>.
4. Throw -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

## ZDD25 SUGGESTED SPECIFICATION

Furnish and install thermostat controlled VAV diffusers constructed from a minimum of 18 gage (1.2) steel and attached to a unitary stamped seamless backbone. The face plate and back bone is coated with corrosion resistant baked enamel white paint. Diffusers shall incorporate an integral modulating disk that continually regulates the volume of supply air in response to a wall-mounted thermostat. Diffusers shall not rely on integral induction air ceiling-located sensors or set point adjustment methods other than wall-mounted thermostats. Actuators shall be 24 VAC floating point actuators that are

drive-open, drive-closed to ensure finite control of temperature by modulation. Actuators that incorporate an expanding substance that only drive the unit open are unacceptable. Electronic modulating wall-mounted thermostat shall be 2 to 10 Vdc or floating-point. Field wiring, labor, and installation material shall be furnished by installing contractor. Diffuser and control shall be furnished by the same manufacturer to ensure equipment compatibility. VAV Diffuser shall be, in all respects, equal to Ruskin model ZDD25.

## ADDITIONAL INFORMATION



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