VARIABLE AIR VOLUME (VAV) DIFFUSER

- HEAT/COOL CHANGEOVER
- SIMPLE ZONE CONTROL
- SQUARE PLAQUE
- CONTROL UP TO 20 DIFFUSERS WITH ONE THERMOSTAT

Model UNI2-VAV

Model:

UNI2-VAV Steel

The UNI2-VAV is a variable volume diffuser that regulates the amount of supply air into the space. The diffuser incorporates an integral modulating disc damper that continuously regulates the volume of supply air in response to the demand in the space from a wall mounted thermostat. The innovative disc damper design decreases the discharge free area as it throttles the air and so maintains the ceiling coanda effect for maximum throw, even under low flow conditions. The diffuser delivers a tight 360° radial horizontal pattern.

The standard master diffuser has a factory mounted electronic controller, heat/cool changeover sensor and 24 Vac, 3-wire floating point actuator (2 VA). The sensor reverses the throttling action of the damper actuator based upon the cooling or heating mode supply air temperature. Changeover is at 75 degrees F.

A compatible electronic room thermostat is required and supplied as standard on master units which can control up to 19 additional auxiliary diffusers (with a 40 VA transformer) for larger spaces. The standard standalone electronic thermostat provides P + I control and features a LCD digital display. A digital BACnet controller/actuator with a compatible room thermostat is an available option.

The UNI2-VAV Diffuser design provides both an unobtrusive appearance for architectural excellence and engineered performance. The diffuser features a stamped one-piece outer-cone backpan which eliminates mitered corners. The inner face panel features a hemmed edge for strength and a clean appearance. The face panel is held in place by four hook corner posts that positively engage into slots in the backpan and can be removed.

STANDARD FEATURES:

- Engineered air diffusion patterns.
- Thermostat controlled airflow damper that maintains diffuser performance.
- Face panel is virtually flush with the ceiling line.
- Face panel is double-skinned for rigidity and strength and features a hemmed edge for a professional finish.
- Hemmed edge mechanically captures the hanger brackets and the design eliminates welding, ensuring a clean, smooth and blemish free painted finish.
- Face panel is held in place by four hook corner posts that positively engage into slots in the back pan.

CONSTRUCTION MATERIAL:

Corrosion-resistant steel.

FINISH OPTIONS:

AW Appliance White finish is standard. Other finishes are available.

BC Sizes:

Ring Diameter	Diffuser Neck Diameter
BC06 - 06" (152)	10" (254)
BC08 - 08" (203)	12" (305)
BC10 - 10" (254)	12" (305)
BC12 - 12" (305)	14" (356)

REQUIRED SELECTIONS:

Configuration:

MSTE	Master, Electronic
AUXE	Auxiliary, Electronic
MSTB	Master, BACnet
AUXB	Auxiliary, BACnet

Thermostat (Master only):

TE	Electronic, Digital Display (deg. F or C) (default for MSTE)
TBNF	BACnet, Digital Display (deg. F) (default for MSTB)
TBNC	BACnet, Digital Display (deg. C)
TBO	None (by others)

Finish:

AW	Appliance White (default)
SP	Special finish Specify _____ .

OPTIONS:

Transformer:

TR20	20VA	120/24 Vac
TR40	40VA	120/24 Vac
TR50	50VA	480/277/240/208/120 to 24 Vac

BC Bypass Collar:

–	None (default)
BC06	6" ring (for 10" neck)
BC08	8" ring (for 12" neck)
BC10	10" ring (for 12" neck)
BC12	12" ring (for 14" neck)

QB Quadrant Blanks:

–	None (default)
QB3	3-Way Blow
QB2	2-Way Opposite Blow
QC2	2-Way Corner Blow
QB1	1-Way Blow

Blanket:

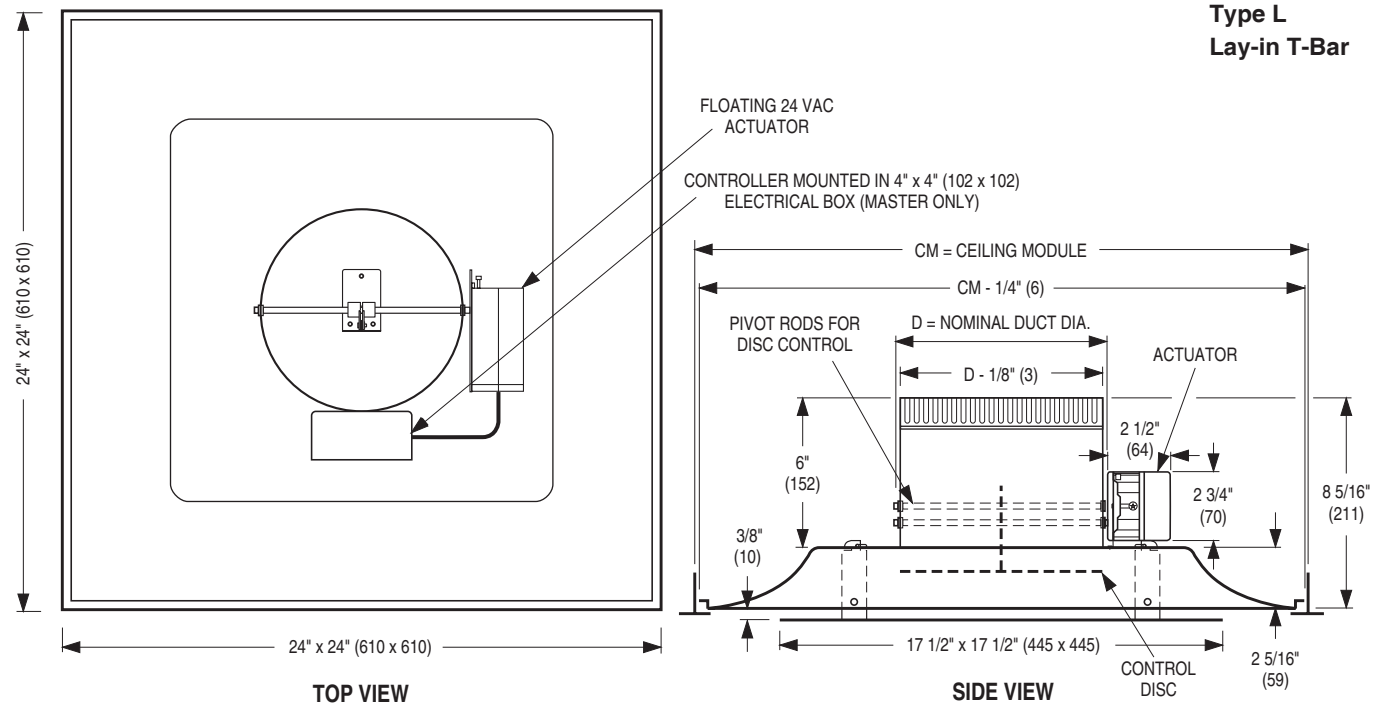
–	None (default)
MIB	Molded Insulation Blanket, R-6.0

BC Bypass Relief Collar
This accessory relieves excess static pressure when throttling airflow and limits diffuser noise by bypassing excess air into the ceiling plenum. At maximum flow (damper fully open) no air is bypassed and at zero flow (damper fully closed) all air is bypassed.
The diffuser neck size must be selected larger than the required ring dia. (inlet duct connection). See table.

DIMENSIONAL DATA AND FRAME TYPES:

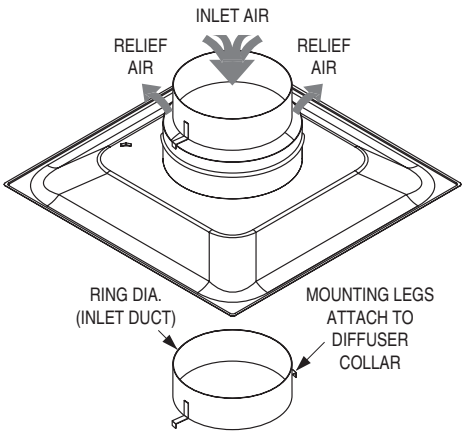
MODEL UNI2-VAV

Type L
Lay-in T-Bar



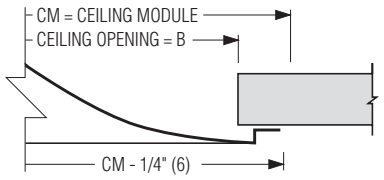
Dimensional Data

CM	Neck Size D	B
24 x 24 (610 x 610)	6, 8, 10, 12, 14 (152, 203, 254, 305, 356)	22 (559)



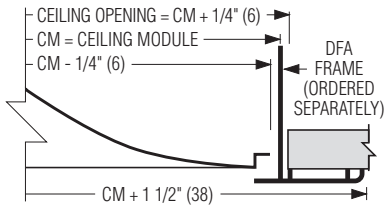
Bypass Relief Collar

Type L Surface Mount



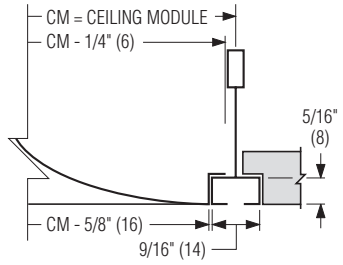
Hard duct connection recommended.

Type L Surface Mount with DFA

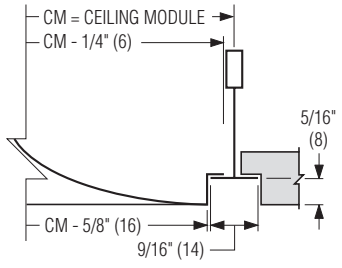


Drywall/Plaster Frame. Recommended for flexible duct and ceiling access.

Type F Fineline® 9/16" Bolt Slot T-Bar



Type F Fineline® 9/16" Tegular T-Bar



PERFORMANCE DATA:

Model UNI2-VAV • 24 x 24 (610 x 610) Face Size • 4-Way Blow (360° Pattern)

Nominal Neck Size	Neck Velocity, FPM	300	400	500	600	700	800	900	1000	1200	1400
	Velocity Pressure	.005	.010	.016	.023	.031	.040	.051	.063	.090	.122
6" Dia.	Total Pressure	.009	.011	.017	.025	.034	.044	.057	.070	.100	.135
	Airflow, CFM	60	80	100	120	140	160	180	200	240	280
	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	—	—	—	—	—	13	17	21	28	34
8" Dia.	Total Pressure	.011	.018	.028	.040	.055	.072	.091	.112	.162	.220
	Airflow, CFM	105	140	175	210	245	280	315	350	420	490
	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	—	—	—	—	—	17	21	25	32	38
10" Dia.	Total Pressure	.017	.029	.043	.060	.082	.108	.136	.168	.243	.331
	Airflow, CFM	165	220	275	330	385	440	495	550	660	770
	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	20	24	28	35	41
12" Dia.	Total Pressure	.023	.037	.059	.085	.115	.151	.191	.237	.338	.461
	Airflow, CFM	240	310	390	470	550	630	710	790	940	1100
	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	—	—	—	—	18	23	27	31	38	43
14" Dia.	Total Pressure	.031	.050	.078	.114	.155	.202	.256	.316	.453	.619
	Airflow, CFM	320	430	530	640	750	860	960	1070	1280	1500
	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	—	—	—	—	20	25	29	33	40	45

Performance Notes:

1. Throws are given at 150, 100 and 50 fpm terminal velocities under isothermal conditions.

2. All pressures are in inches w.g.. To obtain static pressure, subtract the velocitiy pressure from the total pressure.

3. Noise Criteria (NC) values are based upon 10dB room absorption, re 10^{-12} watts. Dash (—) in space indicates an Noise Criteria of less than 15.

4. Diffusers were tested with disc damper in the fully open position.

5. Data derived from tests conducted in accordance with ANSI/ASHRAE Standard 70 – 2006.

6. Flow hoods are recommended for system balancing.

HOW TO ORDER

VARIABLE AIR VOLUME (VAV) DIFFUSERS
MODEL SERIES UNI2-VAV

EXAMPLE: UNI2-VAV - 08 - 24 x 24 - MSTE - TE - L - AW - TR20 - BPRC

1. **Model**
   - UNI2-VAV VAV Plaque Diffuser, Steel
2. **Neck Size** (inches)
   - 06, 08, 10, 12, 14
3. **Ceiling Module**
   Imperial (inches)
   - 24 x 24 (default)
4. **Configuration**
   - MSTE Master, Electronic
   - AUXE Auxiliary, Electronic
   - MSTB Master, BACnet
   - AUXB Auxiliary, BACnet
5. **Thermostat** (Master only)
   - TE Electronic, Digital display (deg. F or C) (default for MSTE)
   - TBNF BACnet, Digital display (deg. F) (default for MSTB)
   - TBNC BACnet, Digital display (deg. C)
   - TBO None (by others)
6. **Frame Type**
   - L Lay-in T-Bar/Surface Mount (default)
   - F Fineline®
7. **Finish**
   - AW Appliance White (default)
   - SP Special Finish

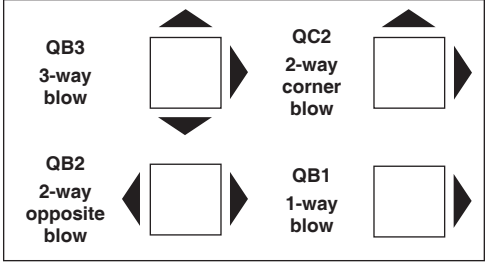
OPTIONS & ACCESSORIES:

8. **Transformer**
   - – None (default)
   - TR20 20VA 120/24 Vac
   - TR40 40VA 120/24 Vac
   - TR50 50VA 480/277/240/208/120 to 24 Vac
9. **BC Bypass Collar**
   - – None (default)
   - BC06 6" ring (for 10" neck)
   - BC08 8" ring (for 12" neck)
   - BC10 10" ring (for 12" neck)
   - BC12 12" ring (for 14" neck)
10. **QB Quadrant Blanks**
    - – None (default)
    - QB3 3-way blow
    - QB2 2-way opposite blow
    - QC2 2-way corner blow
    - QB1 1-way blow
11. **Blanket**
    - – None (default)
    - MIB Molded Insulation Blanket, R-6.0

Bypass Collar Availability

DIFFUSER NECK SIZE	BYPASS COLLAR
10	BC06
12	BC08, BC10
14	BC12

BLOW PATTERNS WITH OPTIONAL FACTORY INSTALLED QUADRANT BLANKS.



HOW TO SPECIFY

SUGGESTED SPECIFICATION:

UNI2-VAV – Steel Construction

Furnish and install **Nailor Model UNI2-VAV Variable Air Volume (VAV) Diffusers** of the sizes and capacities as shown on the plans and air distribution schedules. The UNI2-VAV is a variable volume diffuser that regulates the amount of supply air into the space. The diffuser has a factory mounted controller, actuator, and damper. The VAV Diffuser shall be controlled via a wall-mounted thermostat. The diffuser shall be constructed of corrosion-resistant steel and have a stamped one-piece outer cone backpan. The inner core shall have a plaque style face. The face shall be double skinned with a hemmed edge. The face panel shall be held into place by four hook corner posts that positively engage into slots in the backpan. The panel is to be removable from the backpan, permitting quick, easy removal for diffuser installation and access to the damper. The finish shall be AW Appliance White (optional finishes are available).