MFD

MODULAR FLOOR DIFFUSER



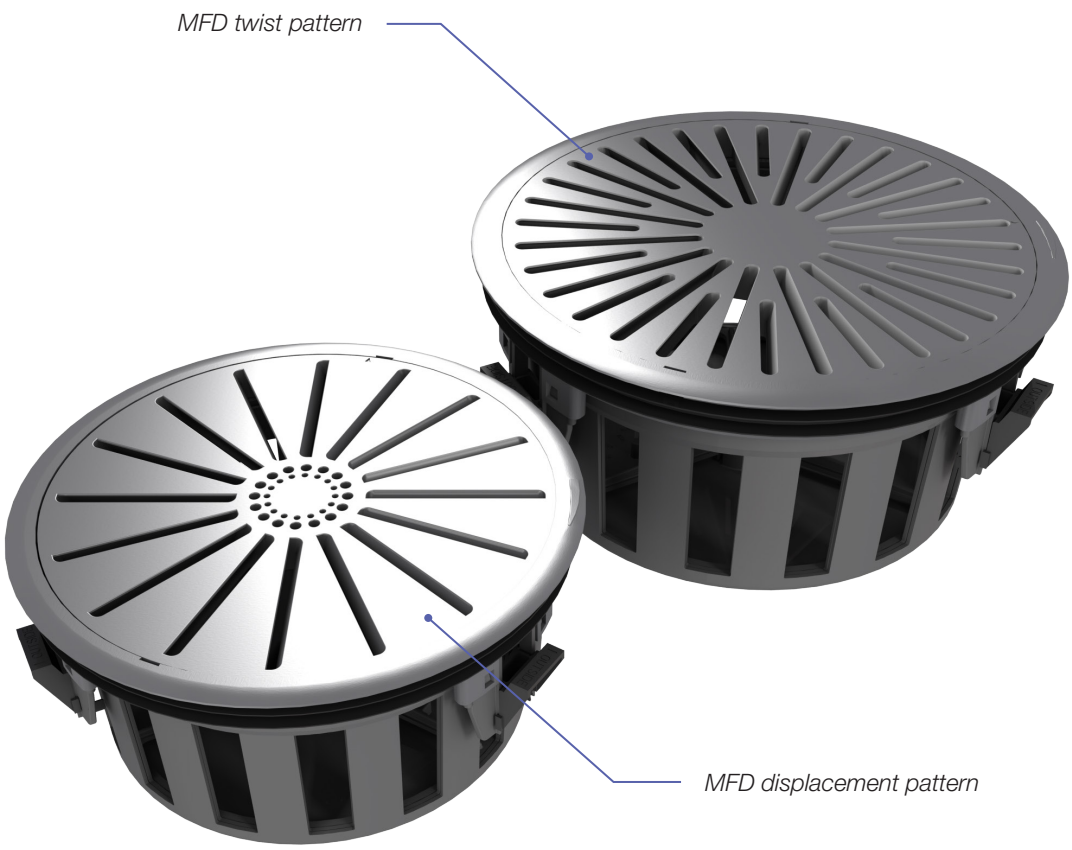
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MFD
Modular Floor Diffuser

The Modular Floor Diffuser (MFD) is available in both a displacement pattern and a twist pattern. Manual adjustable baskets are typical, while several other basket styles are available.

The Price modular floor diffusers have been designed as an efficient air supply for use in air distribution systems utilizing a raised floor design.

A number of different accessories and mounting options are available to suit a wide range of applications.



DESIGNED TO MAXIMIZE MODULARITY

+ The MFD is an integral part of the ModuFlex System. See Interior and Special Zones in the ModuFlex overview at the beginning of the Underfloor section for example applications and control solutions.
+ Room side, drop-in installation allows for increased flexibility, and can be quickly installed or rearranged.
+ One cable daisy change arrangement for controls.

PERFORMANCE AND COMFORT TESTED

+ The MFD is tested in accordance with ASHRAE 55. The low velocity displacement air pattern allows the Modular Floor Displacement Diffuser to be placed in the occupant space.
+ The MFD allows a reduction in outdoor air required by at least 18% as per ASHRAE 62.1.

EASY-TO-USE ZONE SOLUTIONS

+ Moduflex our pre configured moduflex zone solutions are ready to be applied on your application.
+ Plug and play/quick connect.
+ Constant or variable volume as suitable for your application as suitable for zone.

VARIOUS STYLES

+ The polymer diffusers are UL2043 certified and meet NFPA 90A and 90B requirements.
+ The aluminum diffuser meets the requirements for NFPA 90B load ratings.
+ The DBA basket allows for manually adjustable airflow, while the DBV basket provides automatic adjustable airflow, both without removing the diffuser.

TYPICAL APPLICATIONS

The Price Modular Floor Diffusers has been designed for use in air distribution systems utilizing a raised floor design.

The displacement pattern is ideal for use where low induction, floor level flow is desired. The face is designed to provide displacement flow by using narrow slots arranged in a star pattern with a central perforated section.

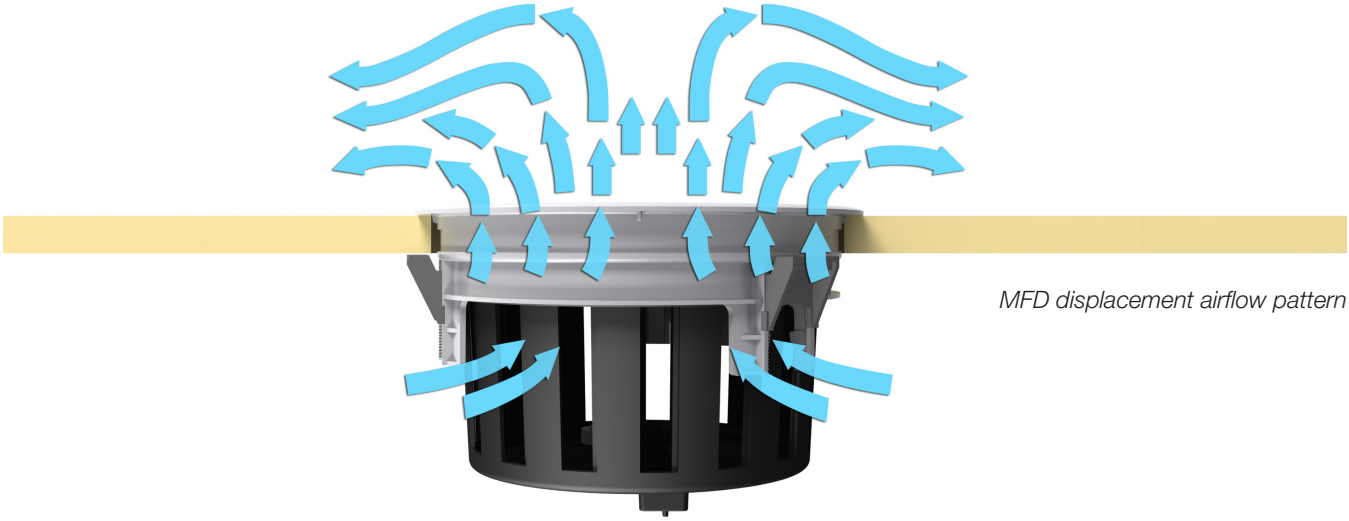
The face of the twist pattern consists of radial slots aligned in a spiral pattern to generate a vertical supply of air. This design provides a rapid mixing, vortex of air, effectively and quickly entraining room air.

OPTIONS

+ Seven standard basket options for the 8 in. diffuser and four for the 10 in.
+ Zip clip and ring press fit gasket mounting options
+ Available in a fire rated polymer (8 in. only) or aluminum finish (8 in. or 10 in.)

DISPLACEMENT PATTERN (MFD-DP)

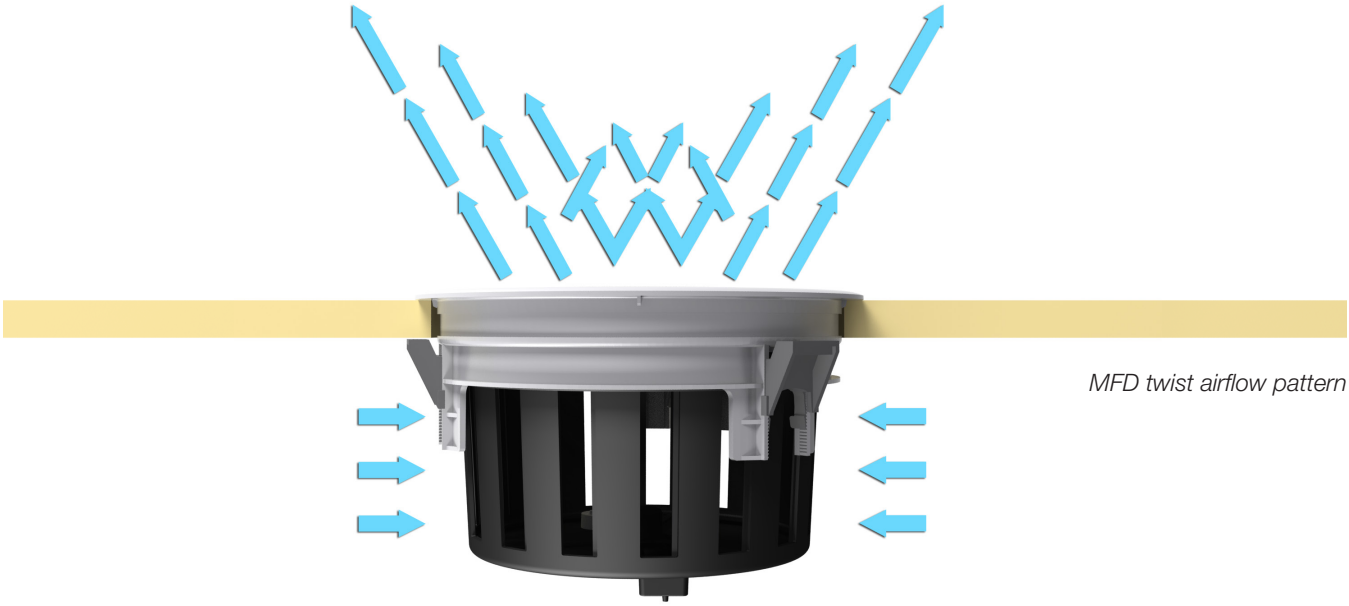
The MFD-DP provides low velocity discharge air into a space. The air moves along the floor until a heat load is encountered, it then rises providing clean, conditioned air before passing above the occupied zone and taking heat contaminants to the high return grilles. Due to this low velocity non-mixing supply air, diffusers can be placed directly beneath the occupant. Displacement diffusers provide superior air quality as well as energy savings compared to a conventional overhead system.



MFD displacement airflow pattern

TWIST PATTERN (MFD-TP)

The MFD twist pattern creates a twisting air pattern for rapid mixing using radial slots. This generates a vertical supply with very high induction due to the turbulent flow. The high induction entrains air from the floor level and quickly equalizes the supply and room air temperatures in the occupied zone. The discharge mixes within a turbulent cone in the occupied zone. The MFD twist diffuser can be placed within 1.5 - 3 ft. of an occupant while maintaining a draft rate between 10-15 percent people dissatisfied according to ASHRAE 55-2004.

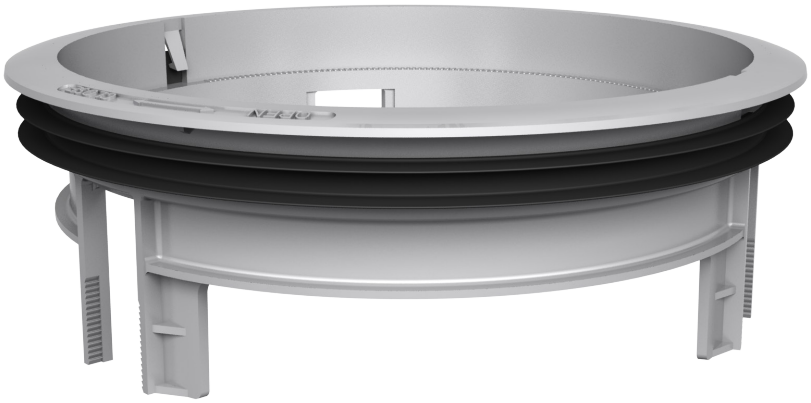


MFD twist airflow pattern

MOUNTING RING OPTIONS

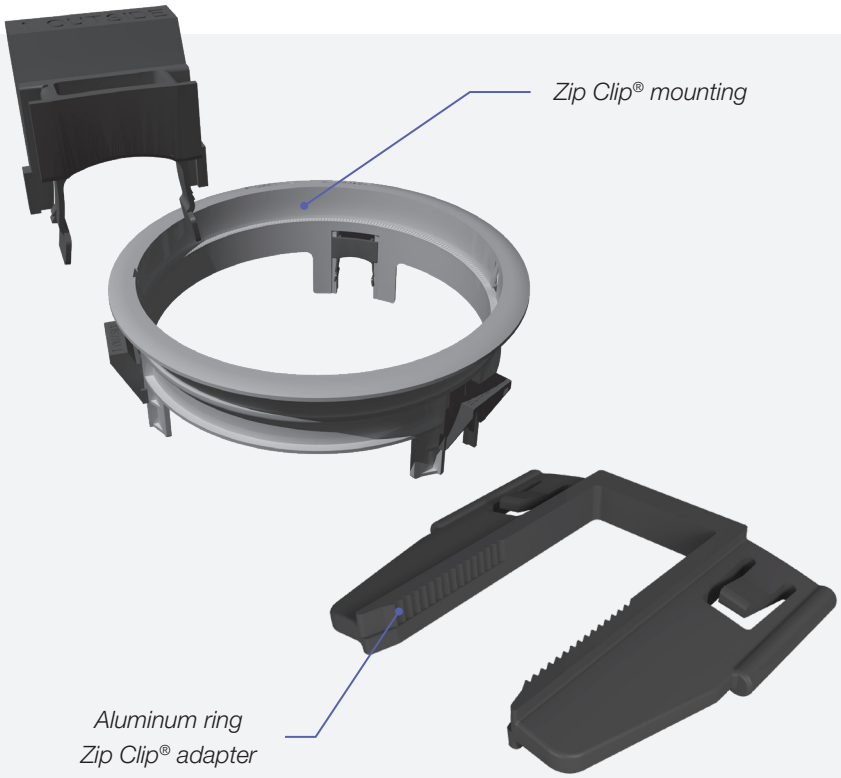
Ring Press Fit

The Ring Press Fit mounting style provides the simplest and quickest way to install round floor diffusers. The gasket presses against the rough opening in the floor tile, eliminating the need for tools during installation.



Zip Clip Mounting

The Zip Clip® is a simple patented method for installing Price round floor diffusers. The advantage of this mounting method is that it can be installed from the room side without tools in a matter of seconds. The Zip Clip® uses a ratcheting mechanism to tightly and evenly secure the mounting ring to the floor. Because the diffuser face and basket are all locked to the mounting ring after installation, the entire assembly is effectively secured. Ring press fit gasket is included with Zip Clip®.



ACCESSORY BASKETS

The seven standard 8 in. distributor baskets (B, BS, DBV, DB, DBS, DBA, DBAS) and four standard 10 in. distributor baskets (B, DB, DBA, DBV) allow for even distribution of supply air through the round floor diffuser. The basket is also used to catch debris that may fall through the diffuser face.



B – Basic basket



DB – Basket with damper



DBA – Basket with face adjustable damper



BS – Short 2 in. basket with damper



DBS – Short 2 in. basket with damper



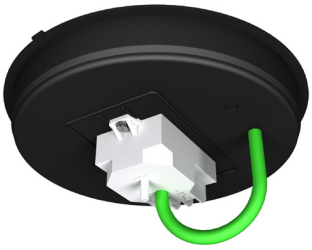
DBAS – Short 2 in. basket with face adjustable damper



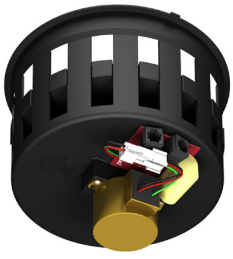
RBC – Basket with collar for duct connection



BOP – Blank Off Plate



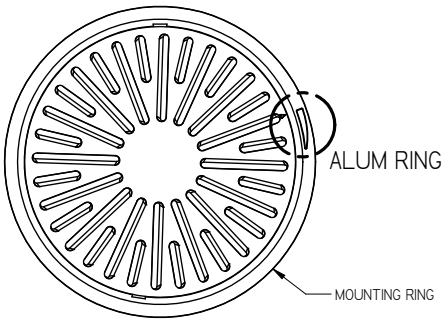
RPN – Relative pressure node (Available with PCU)



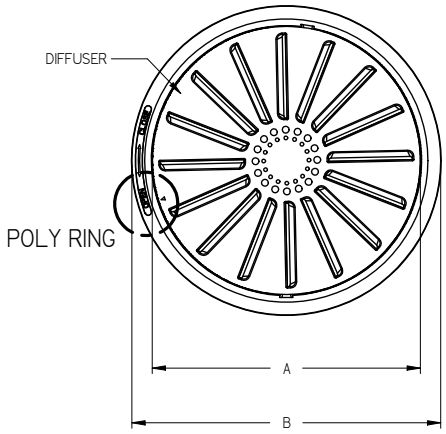
DBV – Electronically controlled VAV basket

DIMENSIONAL DATA

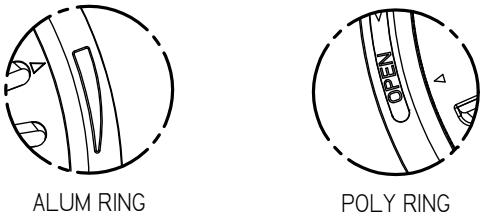
TP - TWIST PATTERN



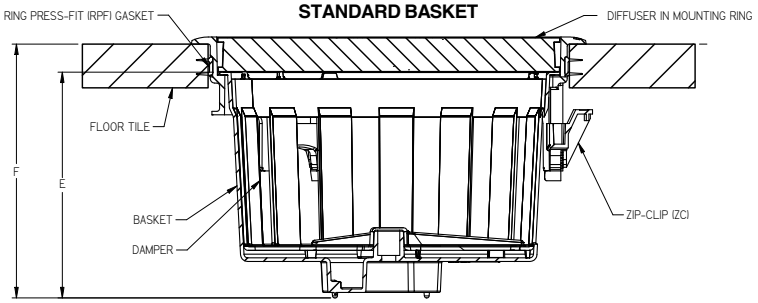
DP - DISPLACEMENT PATTERN



AIRFLOW POSITION INDICATOR DETAIL:



STANDARD BASKET



Diffuser & Mounting Ring Dimensions

SIZE	DIFFUSER FACE (A)		MOUNTING RING (B)		ROUGH OPENING
	ALUM	POLY	ALUM	POLY	
8R	7.90 (201)	7.82 (199)	9.08 (231)	9.03 (229)	8.50 ± .04 (216 ± 1)
10R	9.90 (251)	-	11.08 (282)	-	10.50 ± .04 (267 ± 1)

Basket Dimensions

STYLE	BASKET HEIGHT (E)	DEPTH FROM FLOOR TILE (F)
B	5.25 (133)	5.85 (149)
DB	5.25 (133)	5.85 (149)
DBA	5.25 (133)	5.85 (149)
BS	2.00 (51)	2.75 (70)
DBS	2.00 (51)	2.75 (70)
DBAS	2.00 (51)	2.75 (70)
RBC	2.25 (57)	3.00 (76)
BOP	1.65 (42)	2.30 (58)
DBV	6.50 (165)	7.20 (183)

MODUFLEX

ModuFlex by Price is an Underfloor Air System Solution that is easy to apply. This system combines the benefits of Raised Access Floor (RAF) and Price's years of occupant comfort experience to provide a tailored solution that achieves a comfortable building environment and maximum flexibility. MFD products are most commonly used in interior zones.

Interior Zones

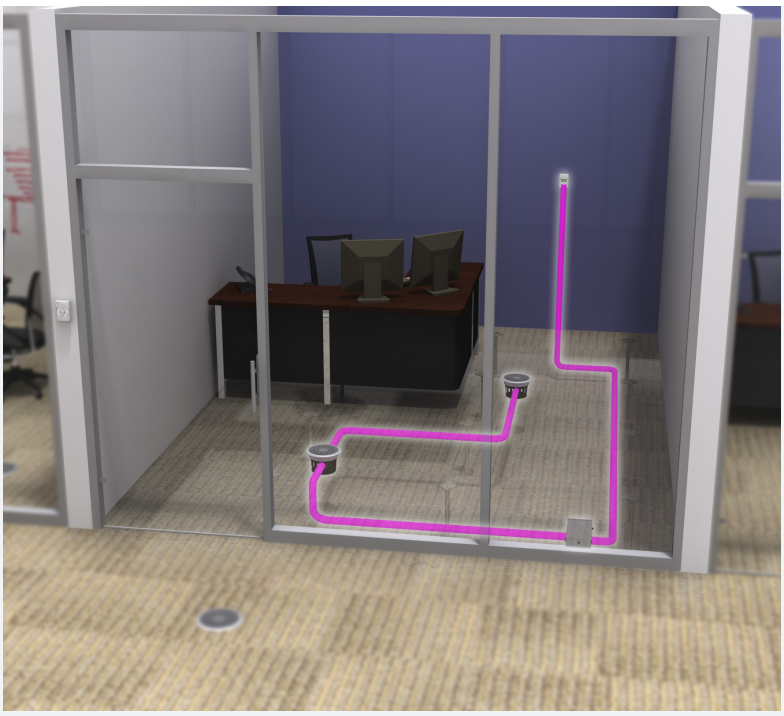
Cooling Only: Constant Volume

This control zone is formed using manually adjustable constant volume diffusers with air being supplied from the pressurized floor plenum. Pressure nodes are placed strategically throughout the plenum to monitor the plenum pressure. The Underfloor Pressure Controller (PCU) maintains desired plenum pressure and airflow through signaling the main fan to modulate or adjust the plenum dampers.



Cooling Only: Variable Volume

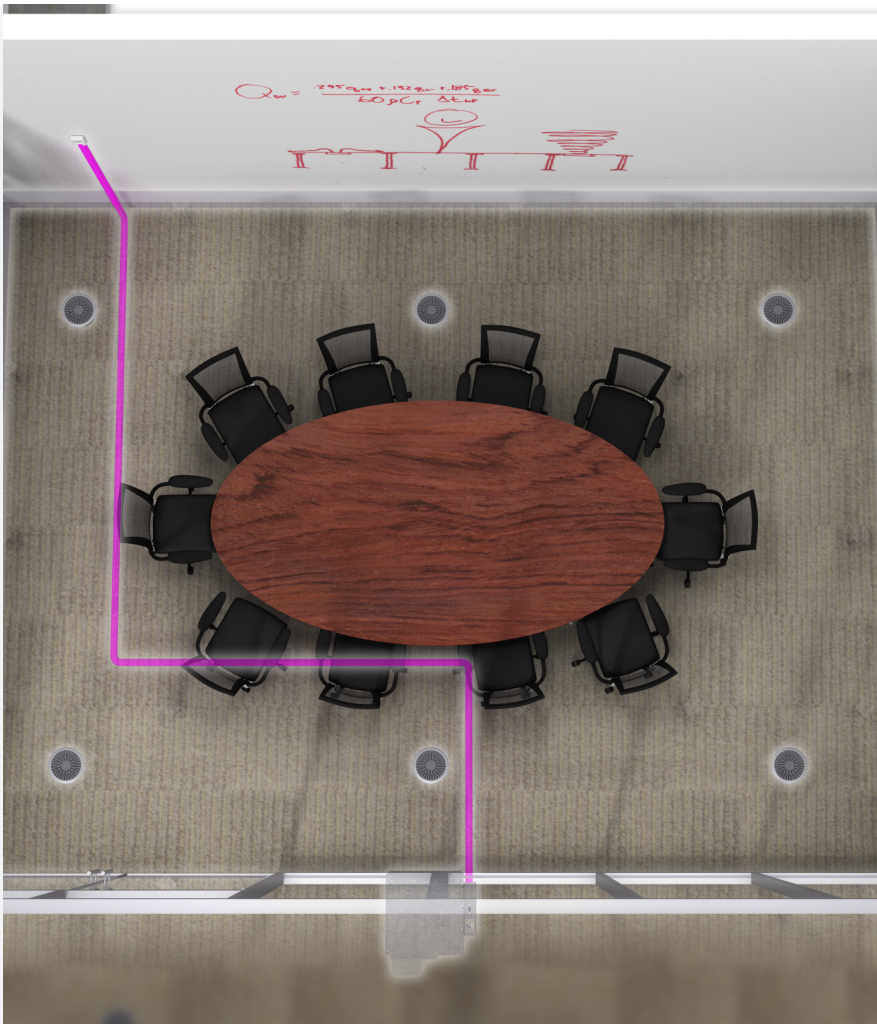
This control zone is formed using variable volume round floor diffusers controlled from the room thermostat. A thermostat monitors the room temperature, while the Power Control Module (UMC3/UMCB) adjusts the dampers to meet the cooling requirement of the space.



Special Zones

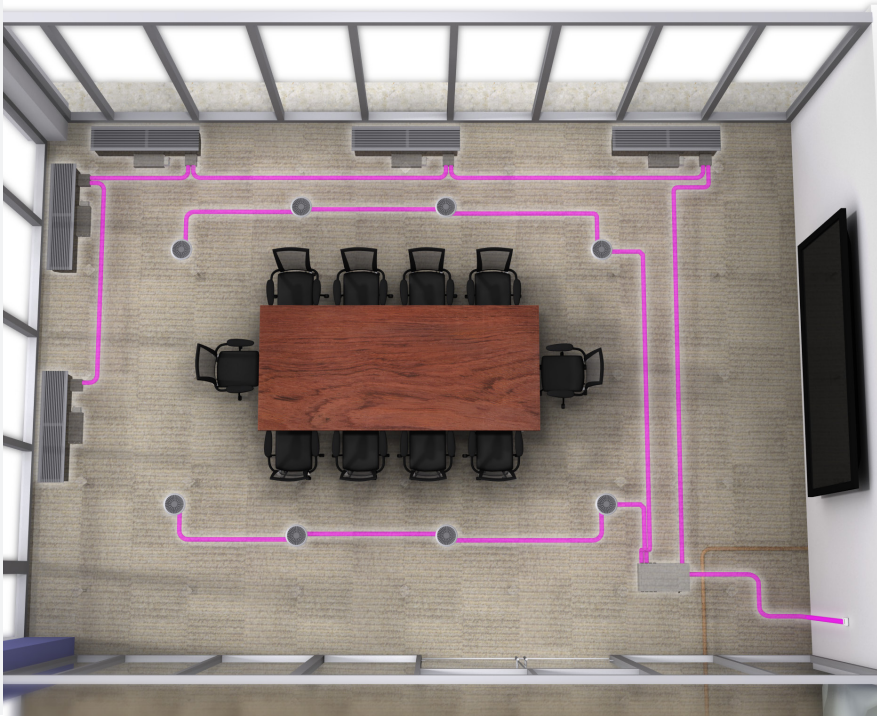
Sub-plenum Cooling Only: Variable Volume

This control zone is formed using fixed damper position round floor diffusers. The pressurized plenum for the space is divided from the rest of the floor plate. This sub-plenum is pressurized by a fan terminal. A thermostat monitors the room temperature and occupancy, while the PCM adjusts the fan to meet the cooling requirement of the space. This strategy is useful for rooms with large temperature swings and higher occupancy, versus smaller break-out style conference spaces.



Perimeter Heating and Interior Cooling

The cooling for this zone is handled by using variable volume round floor diffusers controlled by the room thermostat. Heat is provided by heating room air through natural convection in a heater trough and reintroducing it into the space. A thermostat monitors the room temperature and occupancy, while the PCM adjusts the dampers or heaters to meet the space requirements.



PERFORMANCE DATA

MFD-DP – Imperial Units

Configuration	Pressure in.w.g.	Size	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.1
No Basket	Air Flow cfm	8R	37	42	47	51	56	60	64	68
		10R	49	56	63	69	74	80	85	90
	Sound NC	8R	-	-	-	-	-	-	-	-
		10R	-	-	-	-	-	15	16	18
DB Basket Full Open	Air Flow cfm	8R	35	40	45	49	54	58	62	65
		10R	47	54	61	66	72	77	82	86
	Sound NC	8R	-	-	-	-	-	-	-	-
		10R	-	-	-	-	-	-	17	19
DBV 100% open	Air Flow cfm	8R	32	37	41	45	48	52	56	59
		10R	56	66	68	75	80	86	91	95
	Sound NC	8R	-	-	-	-	-	-	-	-
		10R	-	-	-	-	-	-	16	18
RBC Basket	Air Flow cfm	8R	40	46	52	57	61	66	71	75
	Sound NC	8R	-	-	-	-	-	-	-	16
MFB 8 in. Inlet (DUCTED)	Air Flow cfm	8R	38	44	49	53	58	62	66	70
		10R	48	55	62	68	73	79	84	89
	Sound NC	8R	-	-	-	-	-	-	-	16
		10R	-	-	-	-	-	-	-	16
MFB 8 in. Inlet (PLENUM)	Air Flow cfm	8R	35	40	45	49	54	58	62	65
		10R	46	53	60	66	71	77	81	86
	Sound NC	8R	-	-	-	-	-	-	-	17
		10R	-	-	-	-	-	15	17	18
MFB 6 in. Inlet (DUCTED)	Air Flow cfm	8R	37	43	48	52	57	61	65	68
		10R	48	56	63	69	74	80	85	90
	Sound NC	8R	-	-	-	-	-	-	-	17
		10R	-	-	-	-	-	-	-	18
MFB 6 in. Inlet (PLENUM)	Air Flow cfm	8R	31	36	41	45	48	52	56	59
		10R	41	47	53	58	62	67	71	75
	Sound NC	8R	-	-	-	-	-	-	-	17
		10R	-	-	-	-	-	16	18	19

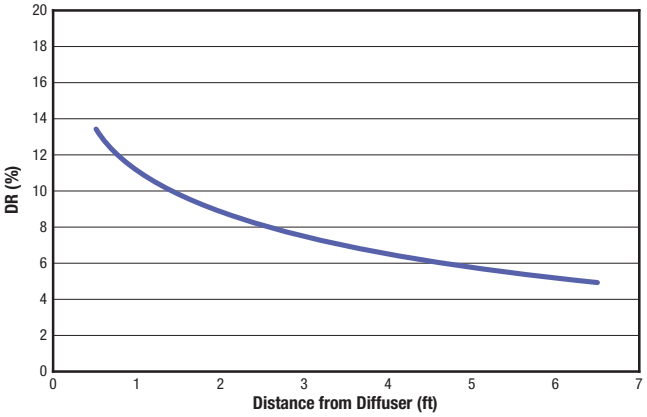
Performance Notes:

1. Units are tested in accordance with ASHRAE Standard 70-2006 (RA 2011).
2. Airflow is in cubic feet per minute, cfm.
3. SP - Static pressure is in inches of water, in. w.g.
4. NC levels are based on a room absorption of 10 dB, re 10^{-12} watts and one diffuser.
5. Blanks (--) signifies individual diffusers have been lab tested and verified to achieve noise levels below NC-15 in accordance with ASHRAE-70.
6. Ducted indicates the basket is direct ducted to a supply source.
7. Plenum indicates the basket is sourced from a pressurized plenum.
8. All MFB data tested with damper fully open where applicable.
9. DB applies to B, DBS, and DBA baskets.

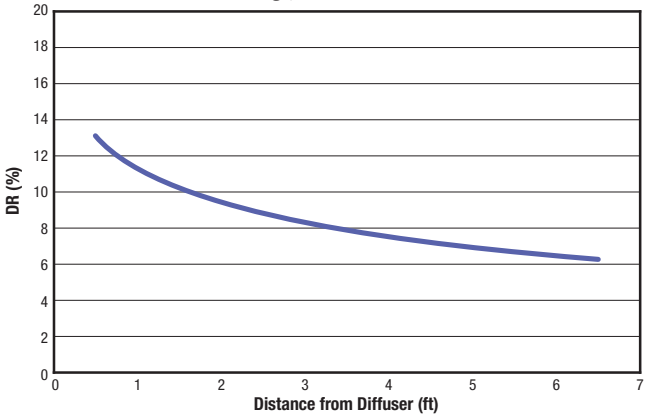
PERFORMANCE DATA

MFD-DP Comfort Curves

MFD-DP-8R at 0.05 in. w.g., 10°F ΔT



MFD-DP-10R at 0.05 in. w.g., 10°F ΔT



Performance Notes:

1. Units are tested in accordance with ASHRAE Standard 55-2004 for DR.
2. SP - Static pressure is in inches of water, in. w.g.
3. DR (%) is draft rate, an indication of the percentage of thermally dissatisfied people due to draft.
4. Stratification temperatures recorded at 4 in., 24 in., 42 in., and 66 in. above the floor.
5. Distances measured from the edge of the diffuser.
6. ΔT represents the temperature difference of the supply temperature to the average room temperature.
7. Measurements taken with standard basket.

PERFORMANCE DATA

MFD-TP – Imperial Units

Configuration	Pressure in.w.g.	Size	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.1
No Basket	Air Flow cfm	8R	63	74	86	97	103	109	115	122
		10R	110	127	143	156	168	181	191	202
	Sound NC	8R	-	-	-	-	-	-	15	16
		10R	-	-	-	-	-	16	17	19
DB Basket Full Open	Air Flow cfm	8R	49	59	68	78	83	89	95	101
		10R	89	102	115	125	136	146	154	162
	Sound NC	8R	-	-	-	-	-	-	15	17
		10R	-	-	-	-	-	16	18	20
DBV 100% open	Air Flow cfm	8R	49	57	66	74	78	81	85	91
		10R	100	114	128	138	149	159	170	179
	Sound NC	8R	-	-	-	-	-	-	16	17
		10R	-	-	-	-	-	15	17	19
RBC Basket	Air Flow cfm	8R	52	60	69	78	84	90	96	101
	Sound NC	8R	-	-	-	-	-	-	15	17
MFB 8 in. Inlet (DUCTED)	Air Flow cfm	8R	63	74	86	97	107	117	127	130
		10R	107	123	138	151	164	176	185	195
	Sound NC	8R	-	-	-	-	-	-	16	18
		10R	-	-	-	-	-	-	-	16
MFB 8 in. Inlet (PLENUM)	Air Flow cfm	8R	51	62	74	85	95	104	114	115
		10R	83	96	108	118	127	137	145	152
	Sound NC	8R	-	-	-	-	-	-	15	17
		10R	-	-	-	-	-	16	18	19
MFB 6 in. Inlet (DUCTED)	Air Flow cfm	8R	66	74	81	89	99	109	118	123
		10R	96	110	124	135	146	157	167	177
	Sound NC	8R	-	-	-	15	16	18	19	20
		10R	-	-	-	-	-	-	-	18
MFB 6 in. Inlet (PLENUM)	Air Flow cfm	8R	45	53	62	70	77	84	91	93
		10R	60	69	77	84	91	98	104	109
	Sound NC	8R	-	-	-	-	-	-	16	18
		10R	-	-	-	-	-	-	-	16

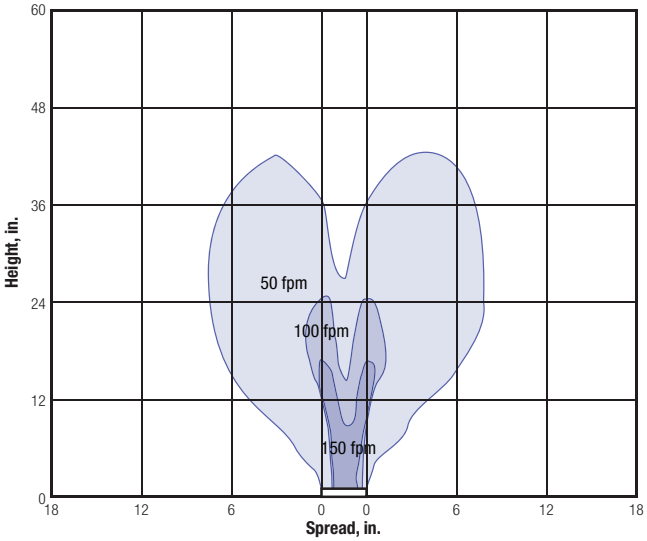
Performance Notes:

1. Units are tested in accordance with ASHRAE Standard 70-2006 (RA 2011).
2. Airflow is in cubic feet per minute, cfm.
3. SP - Static pressure is in inches of water, in. w.g.
4. NC levels are based on a room absorption of 10 dB, re 10^{-12} watts and one diffuser.
5. Blanks (--) signifies individual diffusers have been lab tested and verified to achieve noise levels below NC-15 in accordance with ASHRAE-70.
6. Ducted indicates the basket is direct ducted to a supply source.
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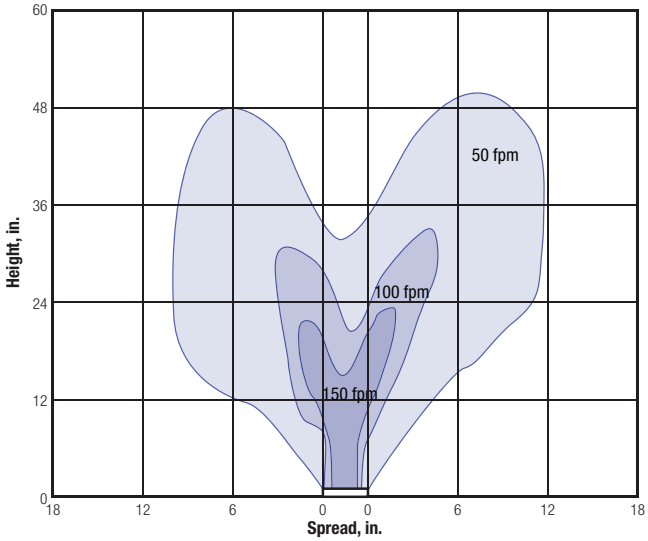
PERFORMANCE DATA

MFD-TP Air Patterns

MFD-TP-8R at 70 cfm, 10°F ΔT



MFD-TP-8R at 110 cfm, 10°F ΔT

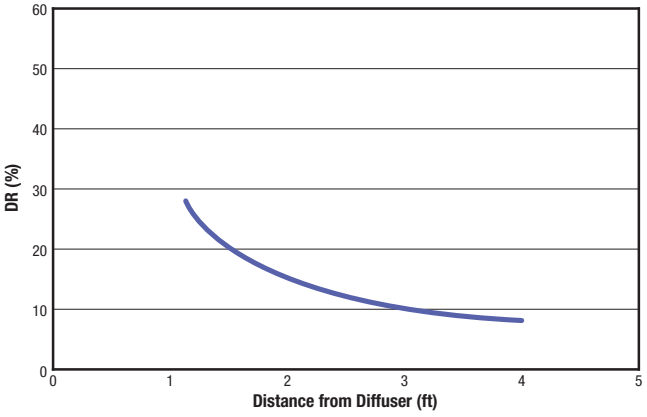


Performance Notes:

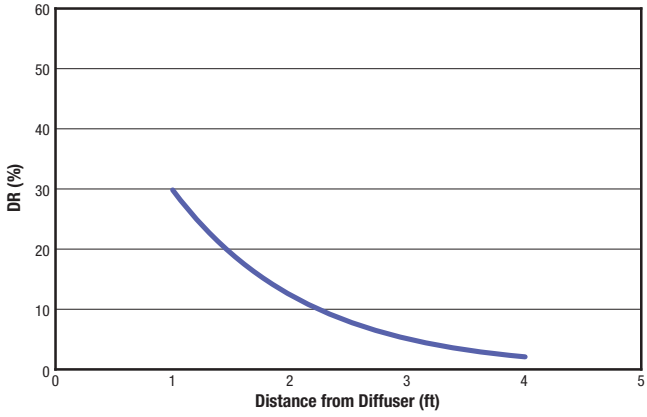
1. Units are tested in accordance with ASHRAE Standard 62.1-2010. For applying a ventilation effectiveness (E_z) of 1.2 with floor-level supply the terminal velocity of 50 fpm must be below 4.5 ft.
2. SP - Static pressure is in inches of water, in. w.g.
3. Spread indicates horizontal width of the isovel, distances are measured from the edge of the diffuser.
4. Height indicates vertical throw above the floor of the isovel.
5. ΔT represents the temperature difference of the supply temperature to the average room temperature.
6. Measurements taken with standard basket.

MFD-TP Comfort Curves

MFD-TP-8R at 0.05 in. w.g., 10°F ΔT



MFD-TP-10R at 0.05 in. w.g., 10°F ΔT



Performance Notes:

1. Units are tested in accordance with ASHRAE Standard 55-2004 for DR.
2. SP - Static pressure is in inches of water, in. w.g.
3. DR (%) is draft rate, an indication of the percentage of thermally dissatisfied people due to draft.
4. Stratification temperatures recorded at 4 in., 24 in., 42 in., and 66 in. above the floor.
5. Distances measured from the edge of the diffuser.
6. ΔT represents the temperature difference of the supply temperature to the average room temperature.
7. Measurements taken with standard basket.

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