



MANUAL – INSTALLATION

Modular Floor Diffusers

MFD Series

v103 – Issue Date: 02/03/22

© 2022 Price Industries Limited. All rights reserved.

PRICE[®]

MODULAR FLOOR DIFFUSERS

TABLE OF CONTENTS

General Overview

Introduction.....	1
General Safety Guidelines.....	1
Safety Symbols	1

System Overview

Interior Zones	2
----------------------	---

Product Overview

Modular Floor Diffusers.....	3
Diffuser Face Options	4
Mounting Ring Options.....	4
Basket/Damper Options.....	5

Installation & Mounting Instructions

Installation Instructions	6
Modular Floor Boot Installation	12
Cleaning Instructions	13

MODULAR FLOOR DIFFUSERS

GENERAL OVERVIEW

Introduction

In this manual, you will find technical descriptions and diagrams of underfloor system components along with their installation instructions. Practical guidelines and recommendations are also provided. If more information is required about this equipment, please contact an Price sales representative.

General Safety Guidelines

This document is intended for use by owner-authorized operating/service personnel who are expected to possess the required training to enable them to perform their tasks properly and safely. This individual must have read and understood this document and any referenced materials prior to performing any task on this equipment. Also, it is essential that this individual be familiar with and comply with all applicable governmental standards and regulations pertaining to the task in question. This individual must also verify that installation and connections comply with local building codes. It is the obligation and responsibility of the operating/service personnel to identify and recognize these inherent hazards, protect themselves, and proceed safely in completing their tasks. Failure to comply with any of these requirements could result in severe personal injury or death to themselves and people at the site, as well as serious damage to the equipment and the property in which it is situated.

The equipment discussed in this manual is relatively complicated apparatus and must be handled with the necessary precautions. Individuals may be exposed to certain components or conditions such as refrigerants, oils, materials under pressure, rotating components, and both high and low voltage during installation, operation, maintenance or service of this equipment. If misused or mishandled, each item has the potential to cause bodily injury or death.

Safety Symbols

The following symbols are used in this document to alert the reader to areas of potential hazard:



Failure to observe may result in personal injury, death or equipment damage.



Failure to observe may result in equipment damage.

NOTE: Used to highlight additional information helpful to the reader.

MODULAR FLOOR DIFFUSERS

SYSTEM OVERVIEW

Interior Zones

CONSTANT AIR VOLUME - COOLING ONLY

Typically, interior zones have relatively stable loads hence constant volume supply is often employed. A typical interior zone consists of constant volume or constant pressure turbulent floor twist outlets installed in a large, common plenum space. In this method the entire plenum space is treated as one zone and, under fluctuating loads, the amount of air delivered to the space is regulated by the relative pressure in this plenum, modulated by a single point of control. Manual face-adjustable diffusers provide occupant control of airflow volume.

VARIABLE AIR VOLUME - COOLING ONLY

In the case an open plenum is desired to be divided into several zones, variable air volume control is possible with the use of devices installed under the diffuser or with the use of a variable volume basket. The variable volume baskets are controlled by the UMC3. The UMC3 would open and close the diffusers releasing air from the pressurized plenum. The variable volume (VAV) diffusers require a 24 VAC signal which is provided by the UMC3 to modulate the actuators. Meanwhile, the UMC3 accepts a 0 to 10 VDC cooling signal either from a manual control signal or from a thermostat. The UMC3 modulates the airflow from 0% to 100%.

CONSTANT AIR VOLUME - COOLING ONLY ▼



VARIABLE AIR VOLUME - COOLING ONLY ▼



MODULAR FLOOR DIFFUSERS

PRODUCT OVERVIEW

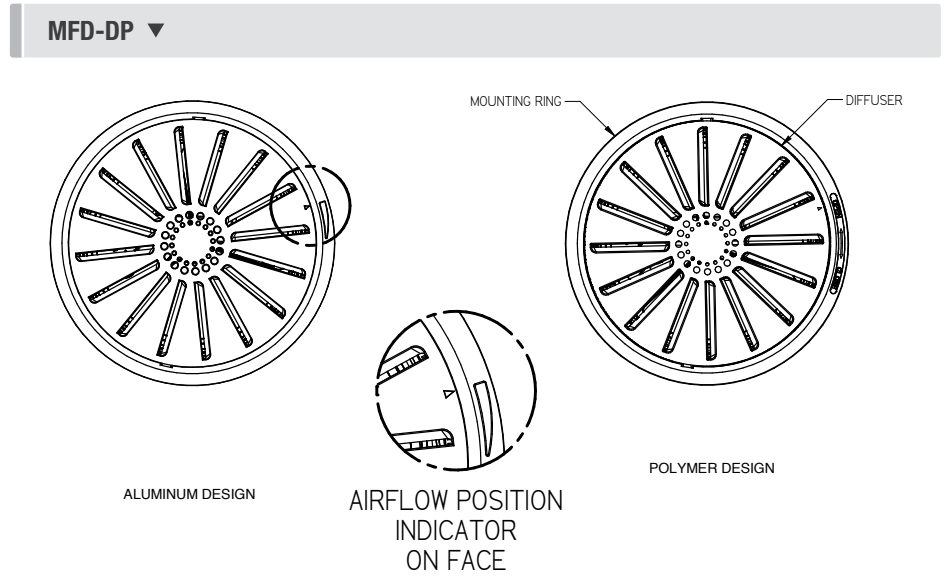
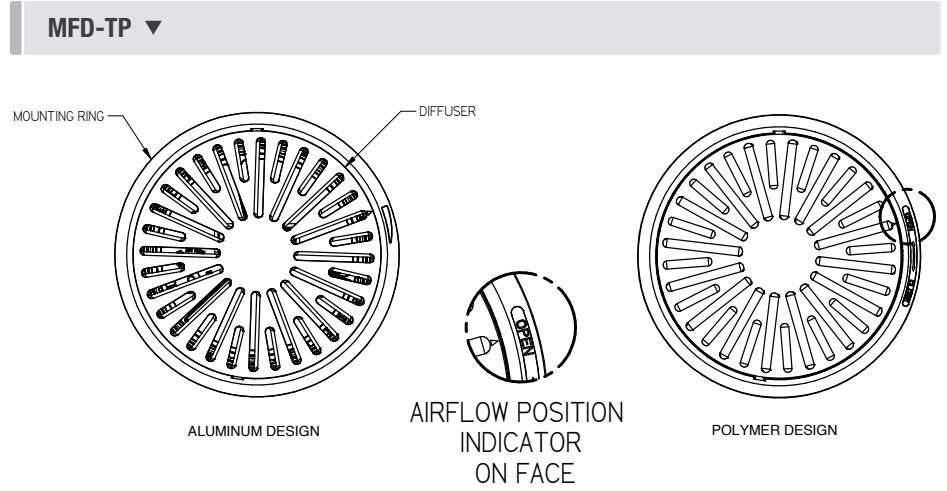
Modular Floor Diffusers

The **Modular Floor Diffuser Twist Pattern (MFD-TP)** is designed with a twist effect using radial slots in combination with an inclined discharge. This generates a vertical supply with very high induction due to the turbulent flow. This symmetrical discharge is ideal for mixing within the occupied zone.

The **Modular Floor Diffuser Displacement Pattern (MFD-DP)** is used where low, floor level flow is required. The diffuser slots discharge the air horizontally across the floor where it can absorb the heat load and rise to the return grilles in the ceiling.

Polymer 8 in. diffusers are available in black and dusty grey finishes.

Aluminum diffusers are available in 8 and 10 in.



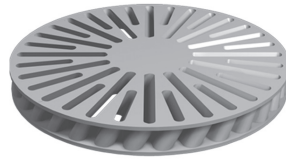
MODULAR FLOOR DIFFUSERS

PRODUCT OVERVIEW

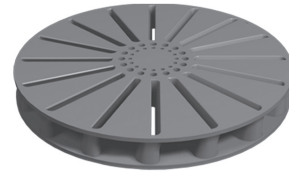
Diffuser Face Options

- A. Plastic diffusers and can be mounted in either RPF or ZC configurations.
- B. Aluminum diffusers and can be mounted in either RPF or ZC configurations. ZC available with ZC adapter.

MODULAR FLOOR DIFFUSERS ▼



TWIST PATTERN



DISPLACEMENT PATTERN

Mounting Ring Options

- A. **Ring Press Fit (RPF)** mounting ring uses a soft rubberized seal to hold the mounting ring in the bore. RPF comes standard with all modular floor mounting rings.
NOTE: The maximum suggested carpet thickness used for Ring Press Fit is 5/16 in., carpets beyond that thickness should use Zip-Clip mounting.
- B. **Zip Clip (ZC)** mounting ring uses the RPF seal to center the ring in the bore and three (3) clips which ratchet in place to secure the mounting ring to the floor. If the floor tile has a contoured bottom, care must be taken to ensure all three zip clips can tighten against the tile.
- C. **Stepped Bore** does not require a mounting ring; the floor is cut to size to fit only the diffuser face.

MOUNTING RING ▼



POLYMER



ALUMINUM

ALUMINUM ADAPTERS ▼



STEPPED BORE ▼



ZIP CLIP ▼



MODULAR FLOOR DIFFUSERS

PRODUCT OVERVIEW

Basket/Damper Options

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. BASIC BASKET



DBS – SHORT 2 IN. BASKET WITH DAMPER



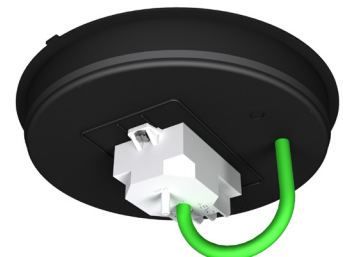
DBAS – SHORT 2 IN. BASKET WITH FACE ADJUSTABLE DAMPER



RBC – BASKET WITH COLLAR FOR DUCT CONNECTION



BOP – BLANK OFF PLATE



RPN – RELATIVE PRESSURE NODE (AVAILABLE WITH PCU)



DBV – ELECTRONICALLY CONTROLLED VAV BASKET

MODULAR FLOOR DIFFUSERS

INSTALLATION & MOUNTING INSTRUCTIONS

Installation Instructions

The components for the modular floor diffuser assembly are shipped assembled. The following is a recommended installation guide.

STEP 1: Cut the hole in the floor/tile according to the following table:

Hole Sizes

MFD	
Size	Ring Press Fit / Zip Clip
8 in.	$\text{Ø}8.50 \begin{smallmatrix} +.125 \\ +0.00 \end{smallmatrix} (216 \pm 3/-0)$
10 in.*	$\text{Ø}10.50 \begin{smallmatrix} +.125 \\ +0.00 \end{smallmatrix} (267 \pm 3/-0)$

*10 in. available in aluminum only

STEP 2: Secure the mounting ring into the floor cutout:

- A. **RPF rings** do not require additional hardware; the rubberized seal prevents the unit from accidentally being dislodged during normal foot traffic as shown in **Figure 1**. Do not use glue!
- B. **Zip Clip mounting** uses three (3) clips that lock the ring in place. The clips can be inserted onto the legs of the mounting ring from the roomside opening and locked into place, as shown in **Figure 2**.

NOTE: For aluminum mounting rings the zip clip adapter must first be snapped into place before placing the zip clips, as shown in **Figure 3**.

FIGURE 1: RPF RINGS ▼

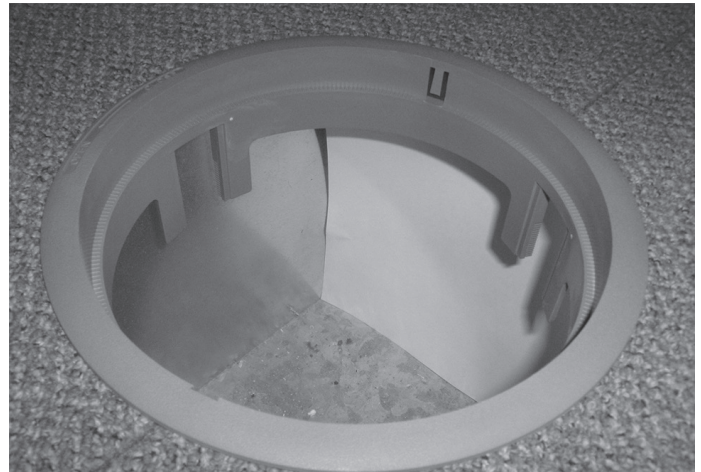


FIGURE 2: ZIP CLIP MOUNTING ▼

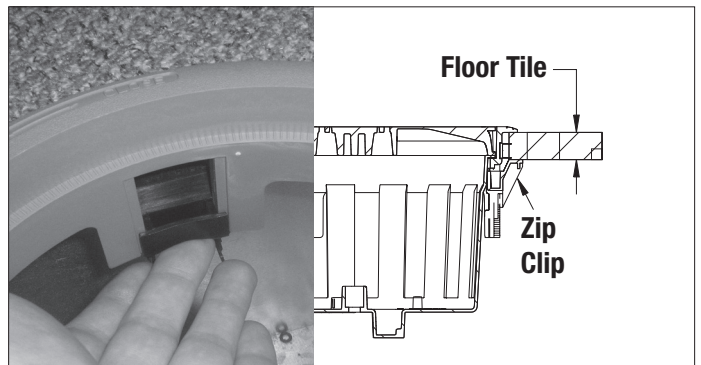
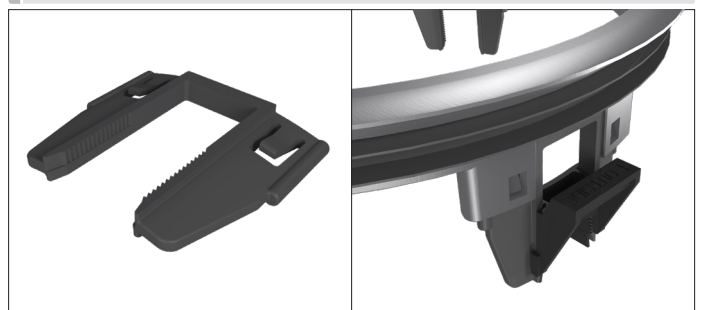


FIGURE 3: ZIP CLIP ADAPTER FOR ▼ ALUMINUM MOUNTING RINGS



MODULAR FLOOR DIFFUSERS

INSTALLATION & MOUNTING INSTRUCTIONS

If using a DBV basket skip step 3 and go straight to step 4, otherwise proceed to step 3 below.

STEP 3: The basket and damper assembly can now be placed into the mounting ring:

- A. The basket should be aligned such that the tabs on the basket flange aligns with the notch in the mounting ring. The tabs are 171° and should only be installed in one orientation, refer to **Figure 4**.
- B. The damper must be installed such that the thinner web portion on the damper legs aligns with the raised tab on the basket, refer to **Figure 5**.
- C. Using the minimum airflow knob, rotate until the indicator points to the desired min airflow as shown in **Figure 6**. Press down on the damper to ensure it does not slip above the min airflow knobs.
- D. For DBA installation, the damper can be placed into basket and rotated until it drops into place, in the correct orientation, refer to **Figure 6 and Figure 7**.

NOTE: The airflow arrow will point to the “open - closed” text or the curved triangular air flow bar on the mounting rings.

FIGURE 4: BASKET TAB ALIGNMENT ▼



FIGURE 5: DAMPER LEG ALIGNMENT ▼

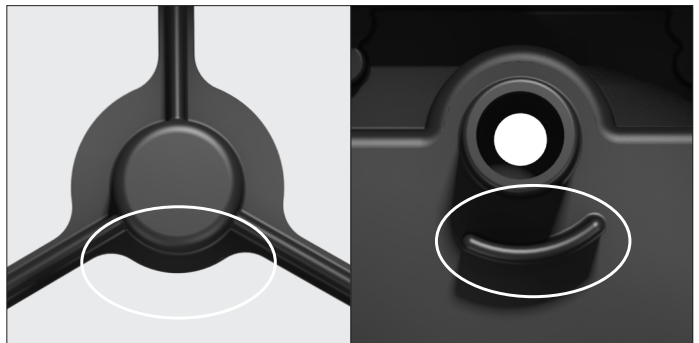


FIGURE 6: MINIMUM AIRFLOW KNOB ▼

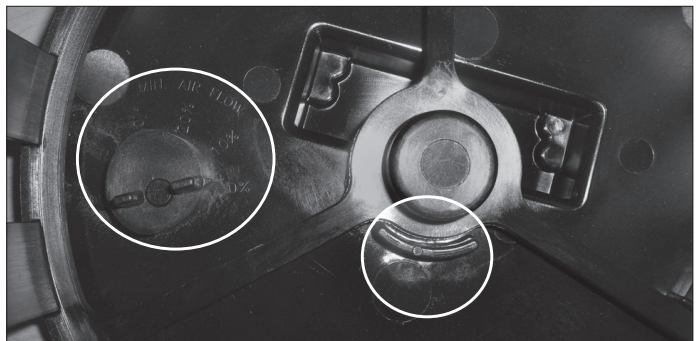


FIGURE 7: DBA BASKET ▼



MODULAR FLOOR DIFFUSERS

INSTALLATION & MOUNTING INSTRUCTIONS

STEP 3 CONTINUED:

- E. RPN and RBC are installed into the mounting ring, following the same procedure as other baskets. Two protrusions prevent the diffuser from rotating. **Figure 8** shows the RBC.
- F. 1/4 in. pressure hose is connected to the top or bottom fitting on RPN to measure the pressurized underfloor plenum or occupied zone, respectively. **Figure 9** shows the the Blank Off Plate and **Figure 10** shows the installed RPN.

FIGURE 8: RBC ▼



FIGURE 9: BLANK OFF PLATE ▼



FIGURE 10: RPN ▼



MODULAR FLOOR DIFFUSERS

INSTALLATION & MOUNTING INSTRUCTIONS

STEP 4: Variable Volume Diffuser Basket (DBV) Installation

The Variable Volume Diffuser Basket (DBV) is designed to allow even distribution of supply air through the modular floor diffuser core while integrating into a VAV cooling system. It utilizes a 24 VAC floating point actuator to modulate a gasketed control damper based on a signal from the building control system or from the Price PCM - Power and Control Module. The actuator modulates the damper to throttle the supply air from the pressurized underfloor plenum to the occupied zone. The motorized damper provides control of cooling flows from maximum to near shut-off. The DBVs can be daisy chained from one unit to another using the provided plenum rated cable with plug-in modular connectors.

INSTALLATION INSTRUCTIONS

1. Locate the mounting ring in the hole in the floor tile.
2. Connect the control wire to the DBV through the floor, **Figure 11**.
3. Insert the DBV, ensuring that the tabs on the DBV align with the holes in the mounting ring, **Figure 12**.

BASKET SIZE OPTIONS:

Diffuser	Basket Diameter "A"
8"	7.400" (188)
10"	9.400" (239)

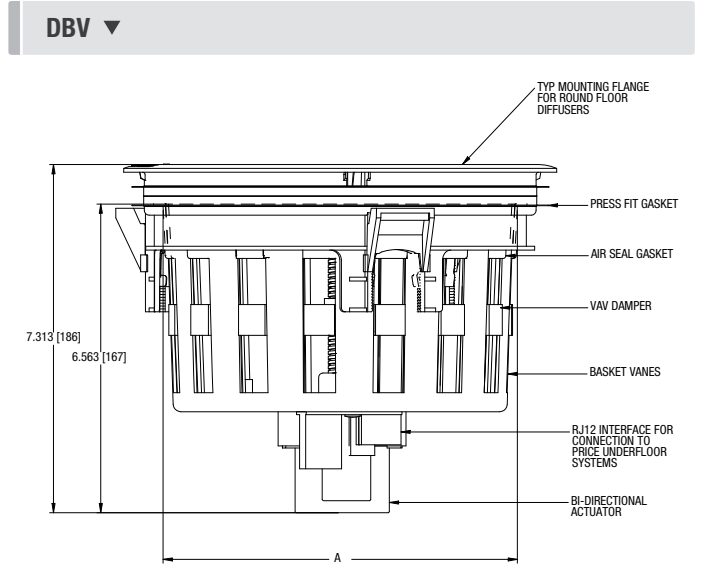


FIGURE 11: CONNECT CONTROL WIRE TO DBV ▼

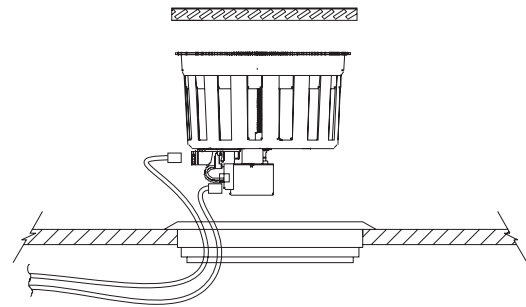
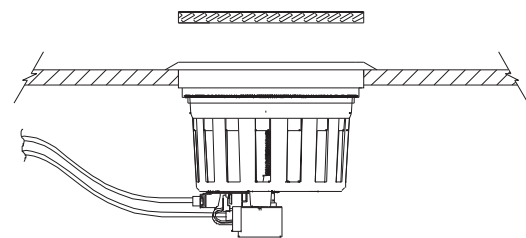


FIGURE 12: INSERT DBV ▼



MODULAR FLOOR DIFFUSERS

INSTALLATION & MOUNTING INSTRUCTIONS

STEP 5: The diffuser face can now be installed into the mounting ring:

- A. If the assembly is not face adjustable (DB, DBS, MDB), then the face can be dropped in place and the unit is complete, refer to **Figures 13A** and **13B**.
- B. If the assembly is face adjustable, the tabs on the damper must align and lock into the bottom of the diffuser face, **Figure 14A** and **Figure 14B**. The arrow on the diffuser face should also point in-between the open and close labels on the mounting ring as shown in **Figures 13A** and **13B**.

FIGURE 13A: ALUMINUM DIFFUSER FACE ▼
INSTALLATION TOP VIEW



FIGURE 13B: POLYMER DIFFUSER FACE ▼
INSTALLATION TOP VIEW



FIGURE 14A: ALUMINUM DIFFUSER FACE ▼
INSTALLATION BOTTOM VIEW

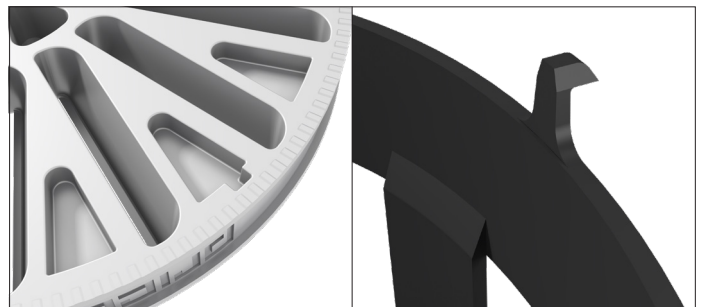
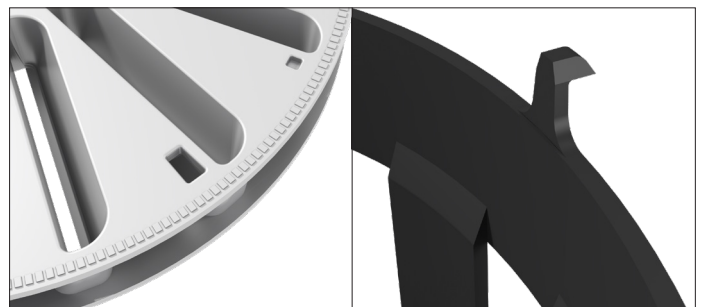


FIGURE 14B: POLYMER DIFFUSER FACE ▼
INSTALLATION BOTTOM VIEW



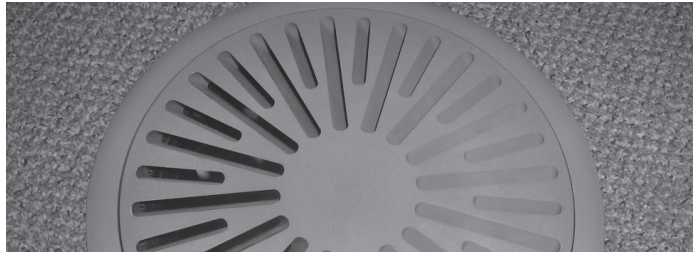
MODULAR FLOOR DIFFUSERS

INSTALLATION & MOUNTING INSTRUCTIONS

STEP 6: Final Inspection:

The diffuser should sit flush in the mounting ring and if face adjustable, should allow rotation of the damper quite easily between open and close positions. When a downward force is applied to the face, the diffuser locks in place. This is to reduce the chance of inadvertent rotation when walking across the diffuser. Therefore, excessive downward force on the face will prevent rotation of the diffuser.

DIFFUSER FLUSH WITH MOUNTING RING ▼



MODULAR FLOOR DIFFUSERS

INSTALLATION & MOUNTING INSTRUCTIONS

Modular Floor Boot Installation

The Price modular floor boots are specially designed for mounting on the bottom of a floor tile under a modular floor diffuser. A top plate with a discharge hole outlet ensures proper sealing to the diffuser even when structural depressions exist on the bottom surface of the floor tiles.

The **MFB-F** enables a ducted connection to a fan powered terminal unit. It is designed to control the supply of conditioned air to a space which has a variable occupancy schedule.

The **MFB-HC** is used in conjunction with heat/cool applications. The **MFB-HC** comes with two (2) inlets, one (1) for connecting to a fan powered terminal unit and the second to admit supply air from the pressurized plenum. The **MFB-HC** comes complete with a 24 VAC floating point actuator on the inlet open to the plenum to cycle a gasketed control damper through a 90° range of movement. The controller modulates based on a call for cooling either directly from the building control system, from the Price **PCM (UMC3 or UMCB)**. A CFlex cable is provided with each unit for connecting to a controller or daisy chaining to multiple boots.

Supply air is either provided through an open connection to the pressurized plenum or via a ducted fan powered terminal unit.

PLENUM BOOT SIZE				
BOOT SIZE	SIDE LENGTH (A)	TILE CENTER (D)	SIDE LENGTH (E)	SIDE LENGTH (F)
8B	10.000 (254)	6.750 (171)	8.960 (228)	8.960 (228)
10B	12.000 (305)	8.000 (203)	4.710 (120)	4.710 (120)

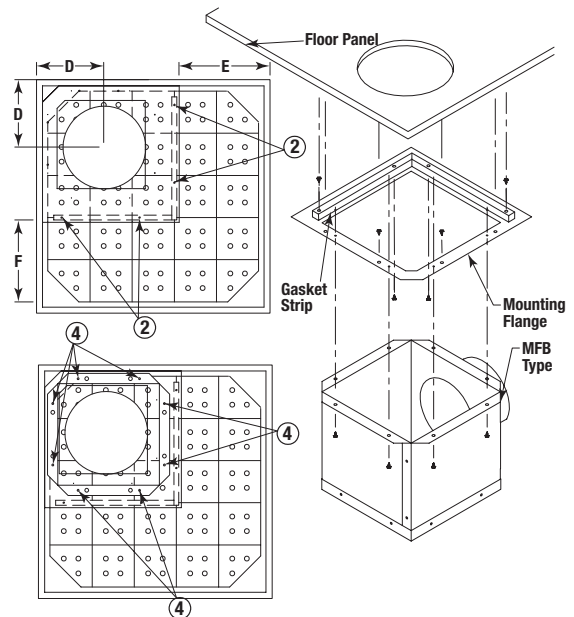
PLENUM INLET (VC, HC) & FAN INLET (F, FC)		
NOM. DUCT SIZE	FAN INLET (B)	PLENUM INLET (C)
6 (152)	5.88 (149)	
8 (203)	7.88 (200)	

INSTALLATION INSTRUCTIONS

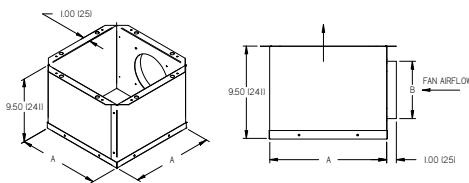
1. Cut hole in tile (hole must be located as marked on submittal and installation page).
2. Fasten the flange on the floor tile by screwing through the outer hole labeled 2. The gasket will cover the holes. Ensure that self-drilling screws are used.
3. Place MFB over flange in with small holes aligned, the large holes provide clearance for the fastener used in Step 2.
4. Fasten MFB to mounting flange and floor tile by screwing through holes labeled 4.

NOTE: Adjust set screw and damper to minimum airflow for balancing.

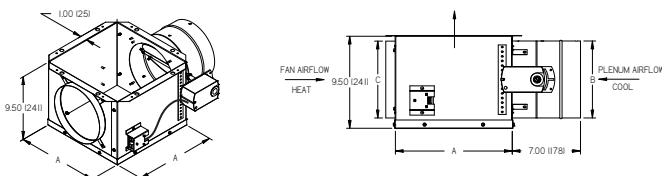
MFB INSTALLATION ▼



MFB-F ▼



MFB-HC ▼



MODULAR FLOOR DIFFUSERS

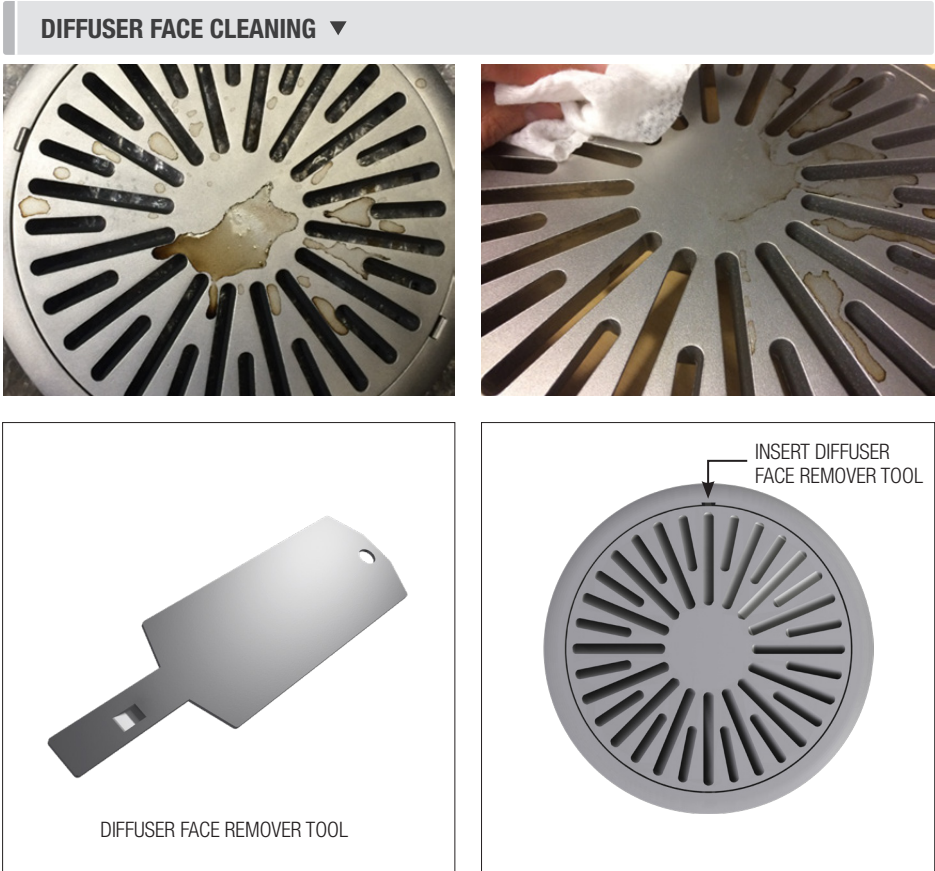
INSTALLATION & MOUNTING INSTRUCTIONS

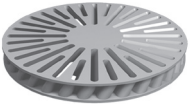
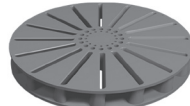


Cleaning Instructions

The face can be cleaned from liquids or food by wiping the face with a moist rag.

For more stubborn stains use disinfectant wipes.

The diffuser basket should be periodically cleaned by removing the diffuser face from the ring and vacuuming any particles that have accumulated in the catch basket. The diffuser face can be removed by inserting the diffuser face removal tool, into the notches carved out along the diffuser face. Once the tool is inserted simply bend back the clip holding the diffuser face in place and pull out the diffuser.



Name	Description	Mounting Options	Basket Options	Standard Finish
 MFD-TP - Polymer	Twist diffuser High induction mixing Polymer construction 8 in. only	Standard with Ring Press Fit (RPF) Zip-Clip No Fastening	8 in. or 10 in.: B, DB, DBA, DBV, 8 in. only: BS, DBS, DBAS, MB, MDB, MDBA	Black Dusty Grey (DG)
 MFD-DP - Polymer	Displacement diffuser Non-mixing low throw Polymer construction 8 in. only			Black Dusty Grey (DG)
 MFD-TP - Aluminum	Twist diffuser High induction mixing Aluminum construction 8 in. or 10 in.			Fine Aluminum Finish
 MFD-DP - Aluminum	Displacement diffuser Non-mixing low throw Aluminum construction 8 in. or 10 in.			Fine Aluminum Finish

This document contains the most current product information as of this printing.
For the most up-to-date product information, please go to priceindustries.com

© 2022 Price Industries Limited. All rights reserved.

PRICE[®]

The Science of Comfort[™]