FLOOR "SWIRL" DIFFUSERS

Nailor Industries Inc.

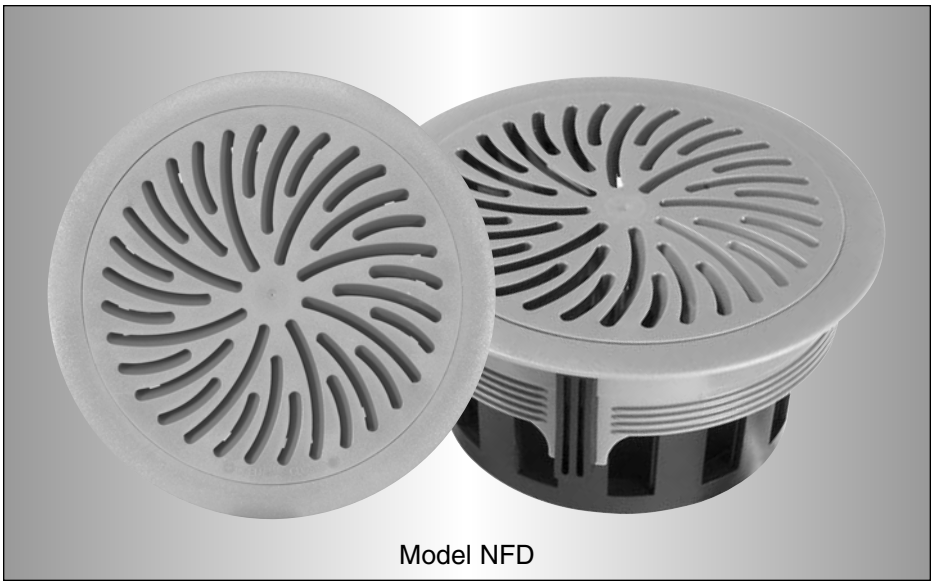
Contents

FLOOR "SWIRL" DIFFUSER

- FIXED HELICAL PATTERN
- ROUND, FLOOR MOUNTED
- HIGH PERFORMANCE
- POLYCARBONATE PLASTIC

Model:

NFD



Model NFD

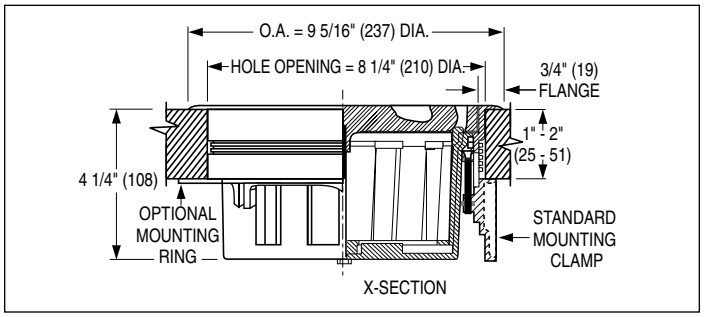
The **Nailor Model NFD Floor "Swirl" Diffusers** are designed for use in raised access floor air distribution systems, where the floor cavity is used as a pressurized supply air plenum. The NFD core design produces a low velocity helical "swirl" discharge air pattern. This design achieves high induction rates of room air, which optimizes mixing for maximum comfort conditions.

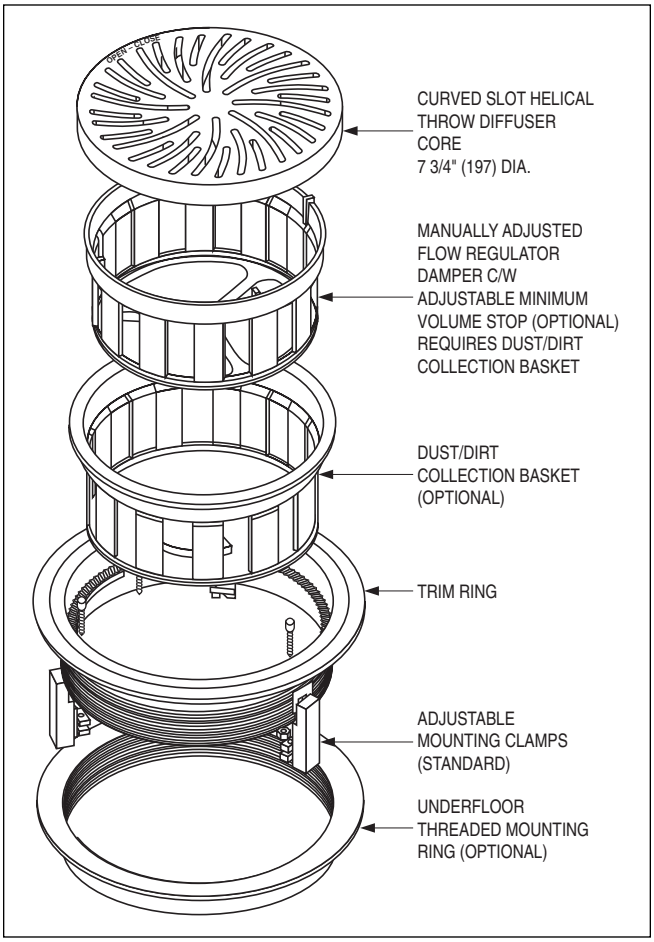
An architecturally appealing face design compliments any contemporary decor and is available as standard in a gray or black finish as well as a wide variety of custom colors.

Allowing extreme flexibility in space planning, the diffuser, once installed in the access floor panel, can be quickly relocated to accommodate changing conditions and floor layouts.

FEATURES:

- Constructed of high impact, polycarbonate plastic which complies with UL Standard 94-5V for flammability.
- Nominal size 8" (203) dia. Low profile design.
- Dust/dirt collection basket catches anything that might fall through the diffuser face and is removable for cleaning.
- Optional flow regulator damper is adjustable without removing the diffuser core, features visual open/closed indication and includes an adjustable min. volume stop.
- Low pressure drop core/damper assembly design.
- Core lies flush with trim ring flange, with or without damper.
- Rugged trim ring design secures carpet and prevents edges from fraying.
- Unique adjustable mounting clamp design adapts to any floor panel thickness and provides simple and secure installation. Permits installation from above the floor without removal of the floor panel or carpet.
- Optional underfloor mounting ring available.
- Standard finish is GR Gray or BK Black core and trim ring. Damper and basket are black. Other finishes are available.





HOW TO SPECIFY OR TO ORDER

(Show complete Model Number and Size, unless "Default" is desired).

Floor "Swirl" Diffuser – Model NFD

NFD - 08 - TR - BDA - MC - GR

BASE MODEL (CORE)

- Floor "Swirl" Diffuser	NFD

NOMINAL SIZE

- 8" (203) nom. dia. (default)	08

TRIM RING

- Standard (default)	TR
- None (Option only when core only is required)	OO

BASKET / DAMPER *

- Basket / Damper attached to core (default)	BDA
- Basket / Damper loose	BDL
- Basket only	BOO
- None	OOO

FINISH

- Gray	GR
- Black	BK
- Special (custom color by architect)	SP

MOUNTING

- Mounting Clamps (default)	MC
- Mounting Ring	MR
- None	OO

Note:

Model NFD: Floor "Swirl" Diffuser

1.* Basket/damper and mounting options MC and MR cannot be ordered without trim ring.

Example: NFD - 08 - TR - BDA - MC - GR

Specification Text File

SUGGESTED SPECIFICATION:

Furnish and install **Nailor Model NFD Floor "Swirl" Diffusers** of the size and type shown on the plans and air distribution schedules. The diffusers shall be constructed entirely of high impact polycarbonate plastic which complies with UL Standard 94-5V for flammability. The core design shall produce a low velocity helical "swirl" discharge air pattern maximizing induction and comfort in the occupied zone. The diffusers shall incorporate a removable dust/dirt collection basket to catch anything that might fall through the diffuser face. Three universally adjustable mounting clamps shall be provided for each diffuser to permit installation from above the floor without removal of the floor panel or carpet. A flow regulator damper, adjustable without removing the diffuser core, shall be provided with visual open/closed indication and include an adjustable minimum volume stop.

Finish on visible surfaces shall be (GR Gray or BK Black) (other finishes are available).

The manufacturer shall provide published performance data for the diffuser, which shall be tested in accordance with ANSI/ASHRAE Standard 70 –1991.

Performance Data

Models NFD and NFD-VAV

Airflow, cfm	30	40	50	60	70	80	90	100	110	120
Plenum Pressure, inches, w.g.	0.012	0.020	0.029	0.040	0.050	0.063	0.077	0.093	0.108	0.125
Vertical Projection, ft. @ 150, 100, 50 fpm	0.1-0.5-1.2	0.4-1.0-2.0	0.8-1.8-2.8	1.2-2.6-3.5	1.6-3.4-4.2	2.2-4.1-4.8	3.1-4.6-5.3	3.9-5.1-5.8	4.6-5.5-6.2	5.2-5.8-6.6
Horizontal Spread, ft. @ 150, 100, 50 fpm	1.0-1.0-1.5	1.0-1.0-2.0	1.5-1.8-2.7	1.7-2.9-4.1	1.9-4.0-5.5	2.1-4.1-5.8	2.5-3.9-5.7	2.9-3.8-5.5	3.1-3.7-5.4	3.3-3.6-5.3
NC	–	–	–	–	–	–	–	15	18	20

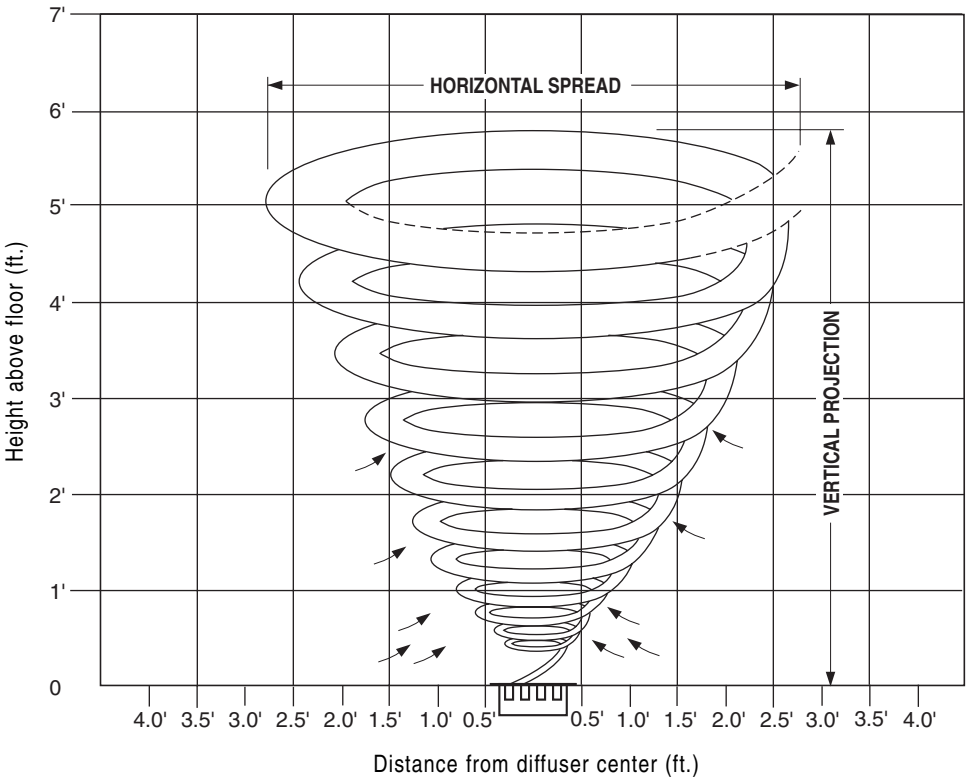
Correction Factor for Return Air Applications: Multiply Plenum Pressure by x 2.65 to determine static pressure drop.

Correction Factors for other supply air temperature differentials.

ΔT (°F)	-6	-8	-10	-12	-14	-16
Projection, ft.	x 1.33	x 1.11	x 1.00	x 0.96	x 0.92	x 0.91
Spread, ft.	x 0.87	x 0.94	x 1.00	x 1.06	x 1.11	x 1.16

Performance Notes:

1. Projection and Spread data were determined in a room with a 11' ceiling height and 10°F ΔT, between supply air and averaged occupied room temperature.
2. Vertical projection (throw) is the maximum height above the floor where terminal velocities of 150, 100 and 50 fpm were observed. Horizontal Spread is the total width of the isovel where terminal velocities of 150, 100 and 50 fpm were observed.
3. Noise Criteria (values) based on 10 dB room absorption, re 10^{-12} watts. Dash (-) in space denotes an NC value of less than 15.
4. Pressure is in inches w.g..
5. Tests conducted with dirt basket/damper installed. Damper fully open. Ak = 0.104
6. Data derived from independent tests conducted in accordance with ANSI/ASHRAE Standard 70 – 1991.



High induction "Swirl" Pattern. 100 cfm supply @10°F ΔT. Outline indicates maximum room air velocity of 50 fpm.

B

FLOOR "SWIRL" DIFFUSERS

Go To NFD-VAV

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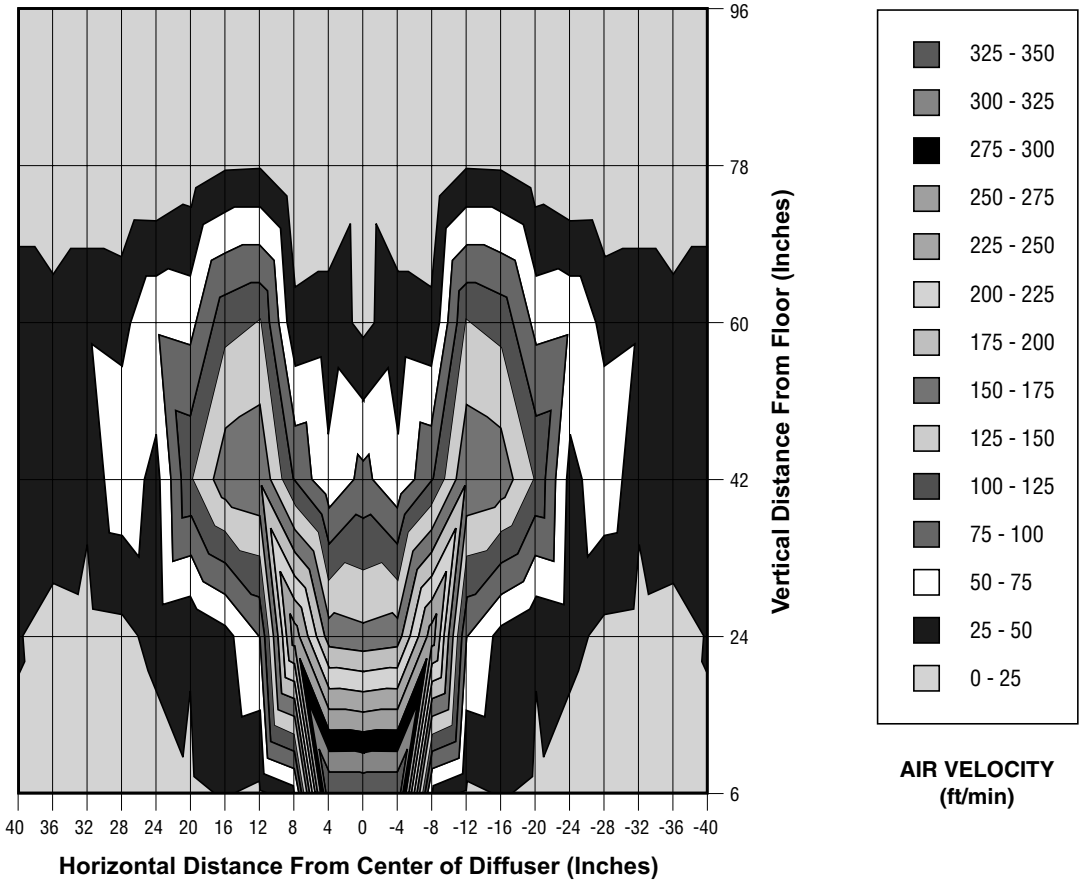
Performance Data

Models NFD and NFD-VAV

PERFORMANCE TEST – MODEL NFD @ 100 CFM



Note: The graph above shows actual air velocities and the associated isovels. This data was obtained in a full scale mock-up test performed on a standard Model NFD @ 100 cfm with a 10°F ΔT.

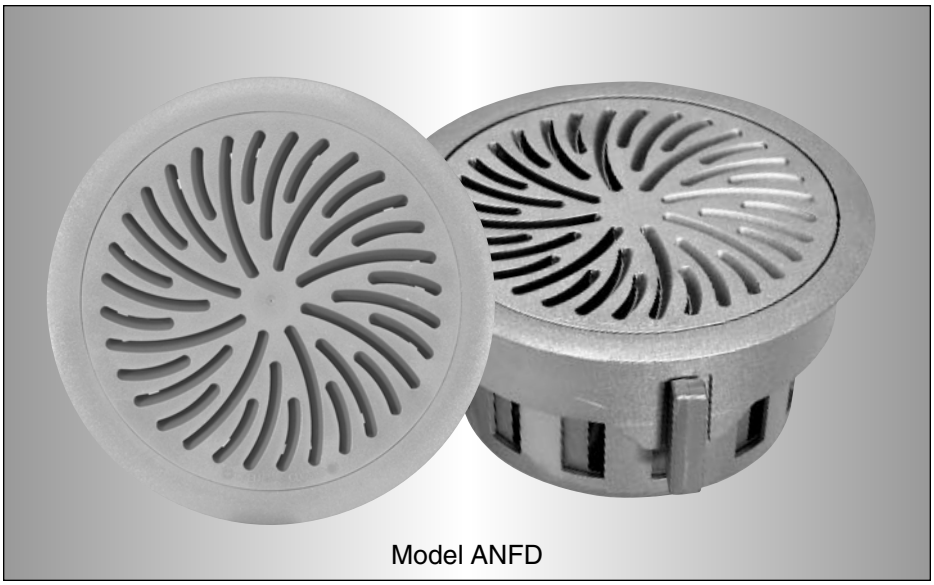
Go To NFD-VAV

FLOOR "SWIRL" DIFFUSER

- FIXED HELICAL PATTERN
- ROUND, FLOOR MOUNTED
- HIGH PERFORMANCE
- ALUMINUM

Model:

ANFD



Model ANFD

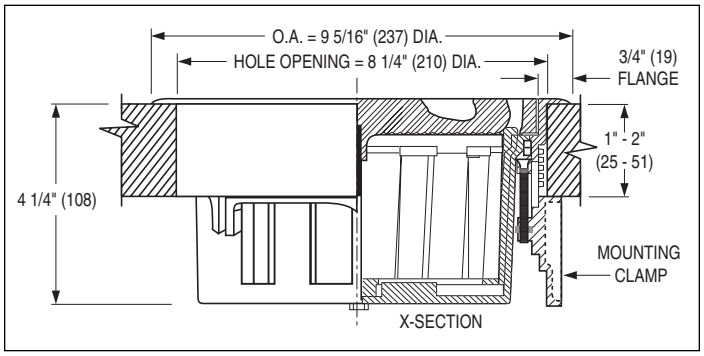
The **Nailor Model ANFD Floor "Swirl" Diffusers** are designed for use in raised access floor air distribution systems, where the floor cavity is used as a pressurized supply air plenum. The ANFD core design produces a low velocity helical "swirl" discharge air pattern. This design achieves high induction rates of room air, which optimizes mixing for maximum comfort conditions.

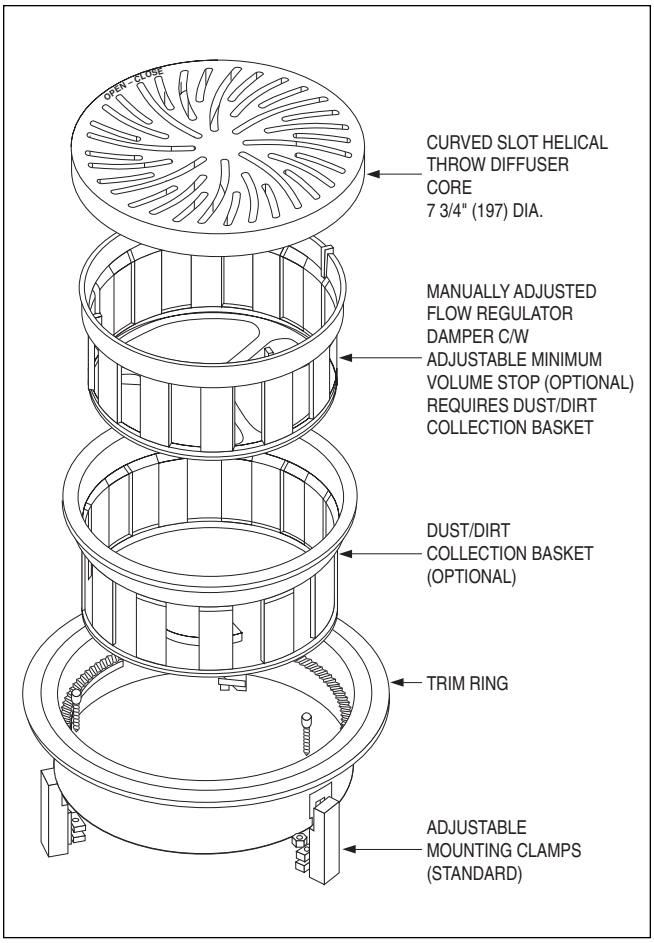
An architecturally appealing face design compliments any contemporary decor and is available as standard in a gray or black textured finish as well as a wide variety of custom colors.

Allowing extreme flexibility in space planning, the diffuser, once installed in the access floor panel, can be quickly relocated to accommodate changing conditions and floor layouts.

FEATURES:

- Meets all the requirements of NFPA 90A.
- Cast aluminum construction.
- Nominal size 8" (203) dia. Low profile design.
- Dust/dirt collection basket catches anything that might fall through the diffuser face and is removable for cleaning.
- Optional flow regulator damper is adjustable without removing the diffuser core, features visual open/closed indication and includes an adjustable min. volume stop.
- Low pressure drop core/ damper assembly design.
- Core lies flush with trim ring flange, with or without damper.
- Rugged trim ring design secures carpet and prevents edges from fraying.
- Unique adjustable mounting clamp design adapts to any floor thickness and provides simple and secure installation. Permits installation from above the floor without removal of the floor panel or carpet.
- Standard finish is GRT Gray or BKT Black textured baked enamel. Other finishes are available.





HOW TO SPECIFY OR TO ORDER

(Show complete Model Number and Size, unless "Default" is desired).

Aluminum Floor "Swirl" Diffuser – Model ANFD

ANFD - 08 - TR - BDA - MC - GRT

BASE MODEL (CORE)

- Aluminum Floor "Swirl" Diffuser	ANFD

NOMINAL SIZE

- 8" (203) nom. dia. (default)	08

TRIM RING

- Standard (default)	TR
- None (Option only when core only is required)	OO

BASKET / DAMPER *

- Basket / Damper attached to core (default)	BDA
- Basket / Damper loose	BDL
- Basket only	BOO
- None	OOO

FINISH

- Gray (textured)	GRT
- Black (textured)	BKT
- Special (custom color by architect)	SPT

MOUNTING

- Mounting Clamps (default)	MC
- None	OO

Note:

Model ANFD: Aluminum Floor "Swirl" Diffuser

1.* Basket/damper and mounting clamps MC cannot be ordered without trim ring.

Example: ANFD - 08 - TR - BDA - MC - GRT

Specification Text File

SUGGESTED SPECIFICATION:

Furnish and install **Nailor Model ANFD Aluminum Floor "Swirl" Diffusers** of the size and type shown on the plans and air distribution schedules. The diffusers shall be constructed entirely of cast aluminum and meet all the requirements of NFPA 90A. The core design shall produce a low velocity helical "swirl" discharge air pattern maximizing induction and comfort in the occupied zone. The diffusers shall incorporate a removable dust/dirt collection basket to catch anything that might fall through the diffuser face. Three universally adjustable mounting clamps shall be provided for each diffuser to permit installation from above the floor without removal of the floor panel or carpet. A flow regulator damper, adjustable without removing the diffuser core, shall be provided with visual open/closed indication and include an adjustable minimum volume stop.

Finish on visible surfaces shall be (GRT Gray or BKT Black) textured baked enamel (other finishes are available).

The manufacturer shall provide published performance data for the diffuser, which shall be tested in accordance with ANSI/ASHRAE Standard 70 – 1991.

Performance Data

Models ANFD and ANFD-VAV

Airflow, cfm	30	40	50	60	70	80	90	100	110	120
Plenum Pressure, inches w.g.	0.011	0.018	0.027	0.036	0.047	0.059	0.072	0.085	0.100	0.115
Vertical Projection, ft. @ 150, 100, 50 fpm	0.5-0.5-0.5	0.5-0.5-0.5	0.5-0.5-1.0	1.0-1.5-2.0	2.1-2.4-2.8	2.4-2.8-3.4	2.7-3.1-3.9	3.0-3.4-4.4	3.3-3.8-4.9	3.6-4.0-5.3
Horizontal Spread, ft. @ 150, 100, 50 fpm	0.5-1.0-1.5	1.0-1.4-2.1	1.6-1.8-2.7	1.8-2.1-4.6	2.0-2.3-5.8	1.8-2.3-6.4	1.4-1.8-6.5	1.1-1.3-6.7	1.1-1.3-6.8	1.0-1.2-7.0
NC	–	–	–	–	–	–	–	15	18	20

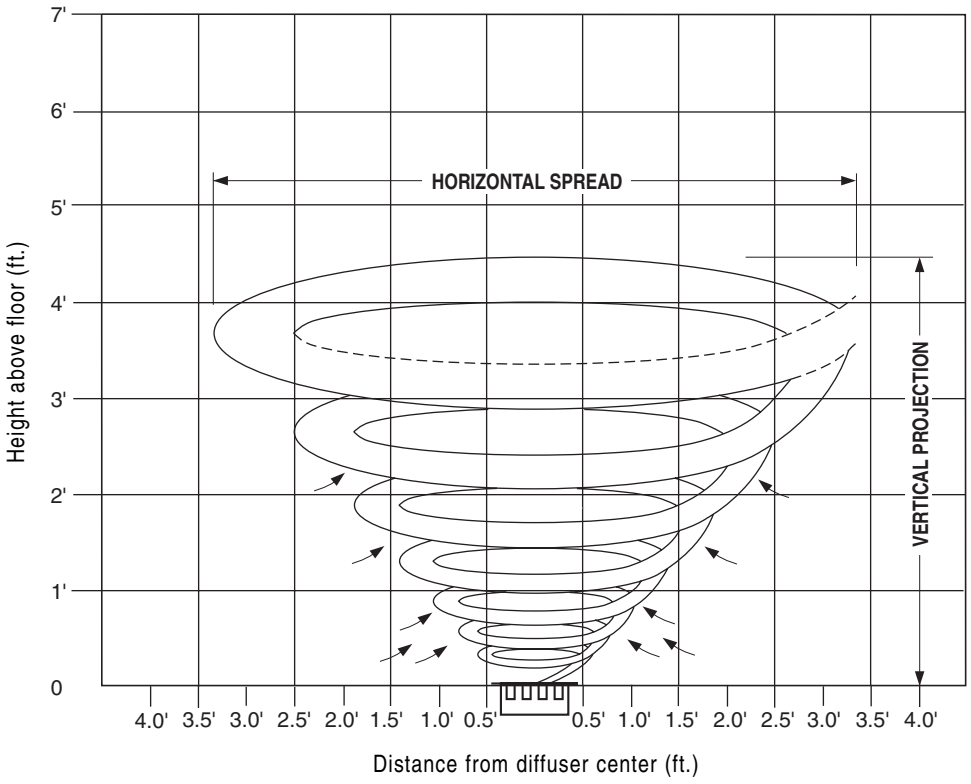
Correction Factor for Return Air Applications: Multiply Plenum Pressure by x 2.65 to determine static pressure drop.

Correction Factors for other supply air temperature differentials.

ΔT (°F)	-6	-8	-10	-12	-14	-16
Projection, ft.	x 1.33	x 1.11	x 1.00	x 0.96	x 0.92	x 0.91
Spread, ft.	x 0.87	x 0.94	x 1.00	x 1.06	x 1.11	x 1.16

Performance Notes:

1. Projection and Spread data were determined in a room with a 11' ceiling height and 10°F ΔT, between supply air and averaged occupied room temperature.
2. Vertical projection (throw) is the maximum height above the floor where terminal velocities of 150, 100 and 50 fpm were observed. Horizontal Spread is the total width of the isovel where terminal velocities of 150, 100 and 50 fpm were observed.
3. Noise Criteria (values) based on 10 dB room absorption, re 10^{-12} watts. Dash (-) in space denotes an NC value of less than 15.
4. Pressure is in inches w.g..
5. Tests conducted with dirt basket/damper installed. Damper fully open. Ak = 0.104
6. Data derived from independent tests conducted in accordance with ANSI/ASHRAE Standard 70 – 1991.



High induction "Swirl" Pattern. 100 cfm supply @10°F ΔT. Outline indicates maximum room air velocity of 50 fpm.

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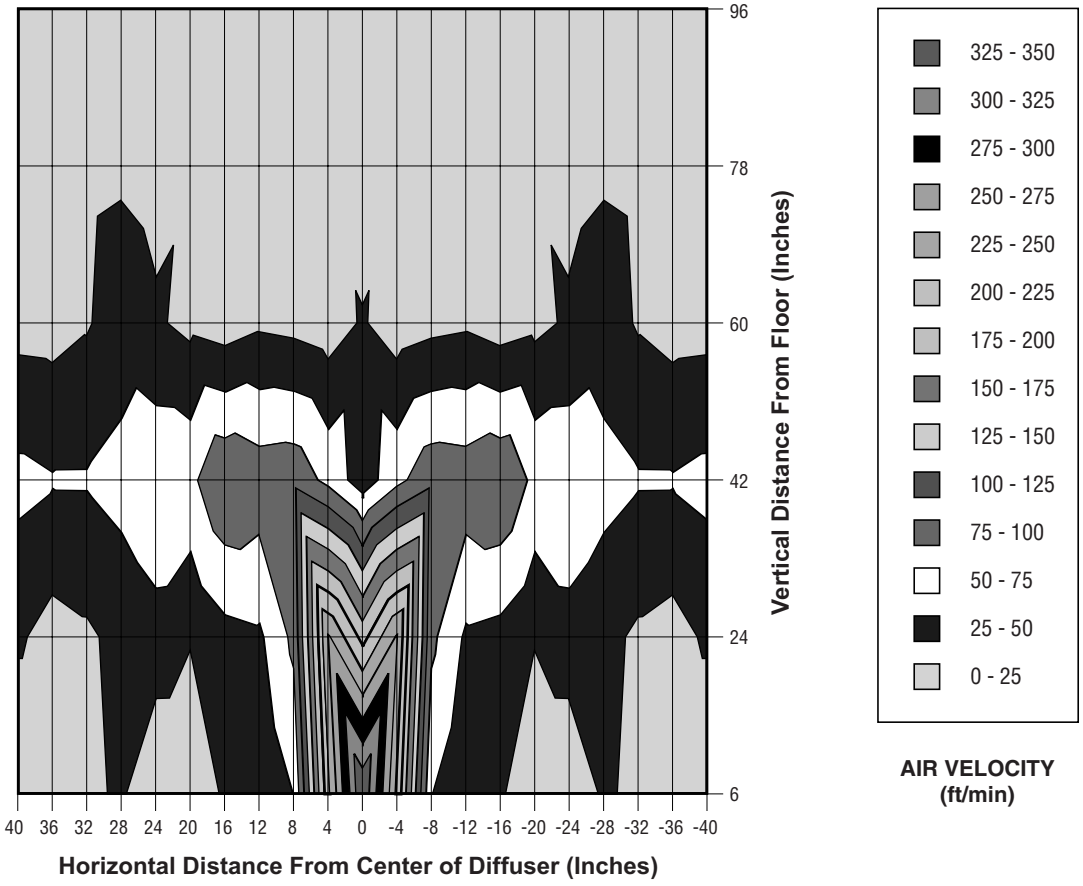
Performance Data

Models ANFD and ANFD-VAV

PERFORMANCE TEST – MODEL ANFD @ 100 CFM



Note: The graph above shows actual air velocities and the associated isovels. This data was obtained in a full scale mock-up test performed on a standard Model ANFD @ 100 cfm with a 10°F ΔT.

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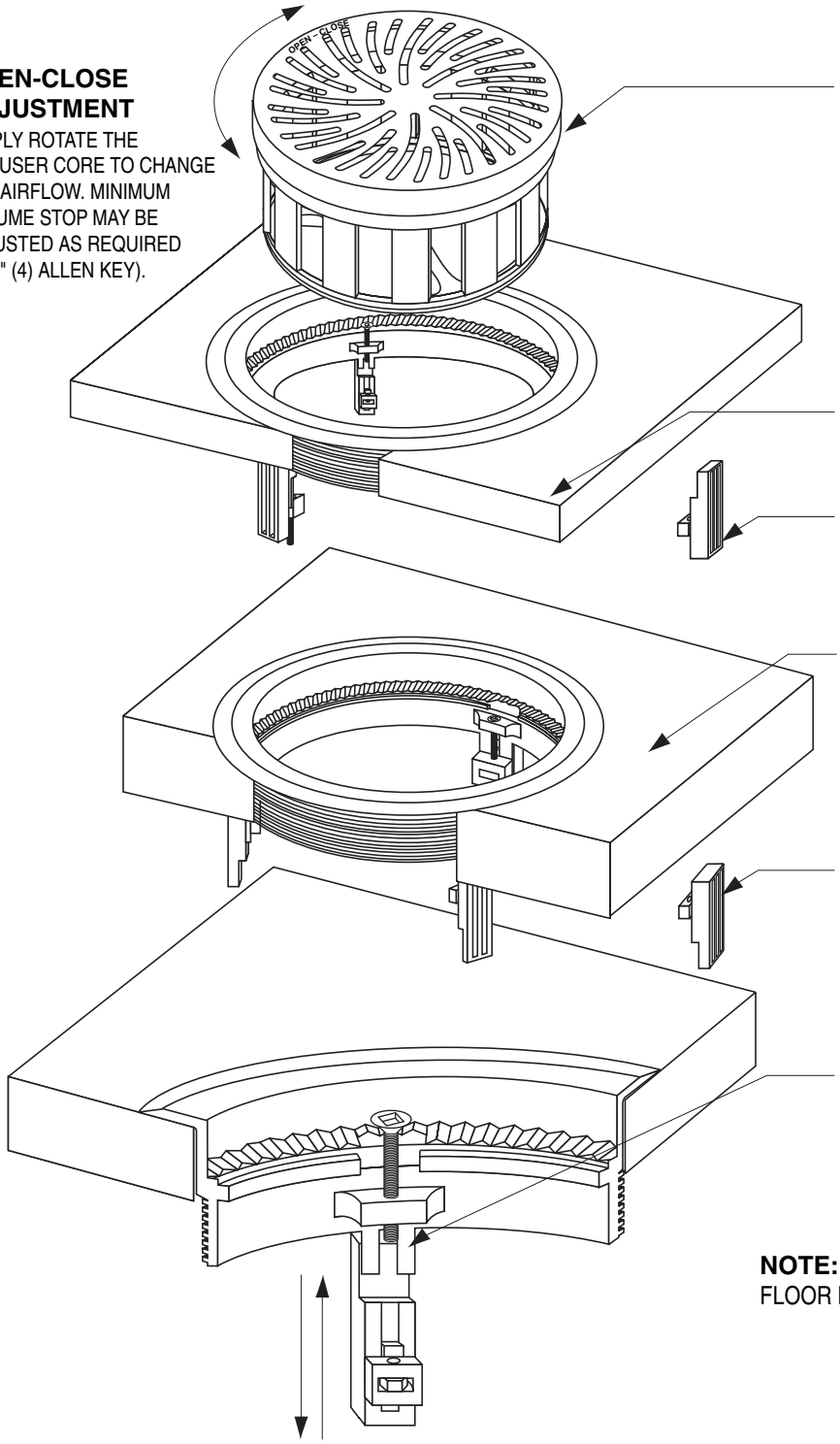
Installation Instructions

Models NFD and ANFD • Floor "Swirl" Diffusers



OPEN-CLOSE ADJUSTMENT
SIMPLY ROTATE THE DIFFUSER CORE TO CHANGE THE AIRFLOW. MINIMUM VOLUME STOP MAY BE ADJUSTED AS REQUIRED (5/32" (4) ALLEN KEY).

CORE ASSEMBLY: DIFFUSER CORE FLOW REGULATOR AND COLLECTION BASKET
SIMPLY DROP IN PLACE AFTER TRIM RING INSTALLATION. ENSURE THE THREE LUGS ON THE BASKET ALIGN WITH THE RECESSES IN THE TRIM RING SO THAT THE FACE OF THE CORE IS FLUSH WITH THE TRIM RING.

TRIM RING ASSEMBLY OPTION 1 WHEN FLOOR IS 1/4" (6) – 1 1/2" (38)

INSTALL THE THREE MOUNTING CLAMPS WITH THE LONG EXTENSION FACING UPWARDS.

ASSEMBLY OPTION 2 WHEN FLOOR IS 1 1/2" (38) – 2" (51)

INSTALL THE THREE MOUNTING CLAMPS WITH THE SHORT EXTENSION FACING UPWARDS.

DETAIL OF 1ST ASSEMBLY OPTION

NOTE: HOLE OPENING REQUIREMENT IN FLOOR FOR INSTALLATION 8 1/4"(210) DIA.

FLOOR ACCESS OUTLET

- ELECTRICAL AND COMMUNICATION CABLE OUTLET
- ROUND, FLOOR MOUNTED
- POLYCARBONATE PLASTIC

Model:

NFA

Model NFA

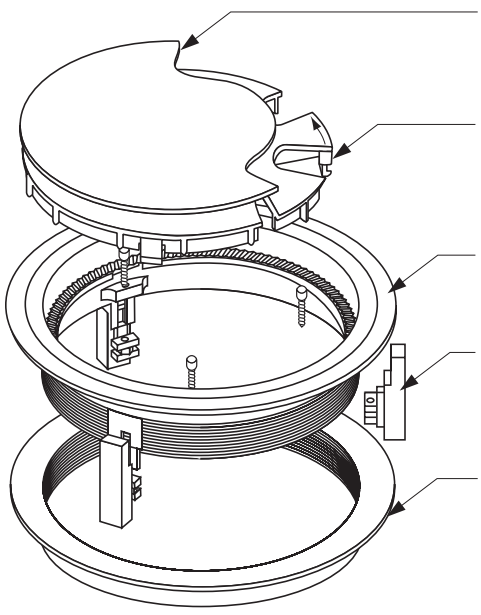
The **Nailor Model NFA Floor Access Outlet** is designed for use in raised access floor air distribution systems and compliments the **Model NFD Floor "Swirl" Diffuser**. It provides a functional means of through-the-floor routing of electrical, telephone and data communication cables.

An architecturally appealing face design compliments any contemporary decor and is available as standard in a gray or black finish as well as a wide variety of custom colors.

Allowing extreme flexibility in space planning, the floor access outlet, once installed in the access floor panel, can be quickly relocated to accommodate changing conditions and floor layouts.

FEATURES:

- Constructed of high impact, polycarbonate plastic which complies with UL Standard 94-5V for flammability.
- Nominal size 8" (203) dia.
- Grommet holes will accept one or two cables or conduit up to 1 1/4" (32) dia. and a third reduced size grommet hole for telephone and/or computer cables.
- Rotating cover plate can be positioned for 1, 2, 3 or no cable openings and can be secured in place.
- Architecturally appealing face design compliments contemporary decor.
- Rugged trim ring design secures carpet and prevents edges from fraying.
- Unique adjustable mounting clamp design adapts to any floor thickness and provides simple and secure installation. Permits installation from above the floor without removal of the floor panel or carpet.
- Optional underfloor mounting ring available.
- Standard finish is GR Gray or BK Black core and trim ring. Other finishes are available.



FLOOR HOLE OPENING = 8 1/4" (210) DIA.

HOW TO SPECIFY OR TO ORDER

(Show complete Model Number and Size, unless "Default" is desired).

Floor Access Outlet – Model NFA

NFA - 08 - TR - MC - GR

BASE MODEL (CORE)
- Floor Access Outlet — NFA

NOMINAL SIZE
- 8" (203) nom. dia. (default) — 08

TRIM RING
- Standard (default) — TR

FINISH
- Gray — GR
- Black — BK
- Special (custom color by architect) — SP

MOUNTING
- Mounting Clamps (default) — MC
- Mounting Ring — MR
- None — OO

Notes:

Model NFA: Floor Access Outlet

1. Must be ordered with TR Trim Ring.
   Example: NFA - 08 - TR - MC - GR

Specification Text File

SUGGESTED SPECIFICATION:

Furnish and install **Nailor Model NFA Floor Access Outlets** of the size and type shown on the plans and air distribution schedules. The access outlets shall be constructed entirely of high impact polycarbonate plastic which complies with UL Standard 94-5V for flammability. The design shall incorporate three grommet holes. Two holes shall be large enough to accommodate up to 1 1/4" (32) dia. cables or conduit and a third reduced size grommet hole for telephone and/or computer cables. The outlet shall incorporate a rotating cover plate that can be positioned, and secured in place, for 1, 2, 3 or no cable openings. Three universally adjustable mounting clamps shall be provided for each diffuser to permit installation from above the floor without removal of the floor panel or carpet.

Finish on visible surfaces shall be (GR Gray or BK Black) (other finishes are available).

VAV FLOOR "SWIRL" DIFFUSER WITH ACTUATOR

- VARIABLE AIR VOLUME
- ROUND, FLOOR MOUNTED
- HIGH PERFORMANCE
- POLYCARBONATE PLASTIC

Model NFD-VAV

Model:

NFD-VAV

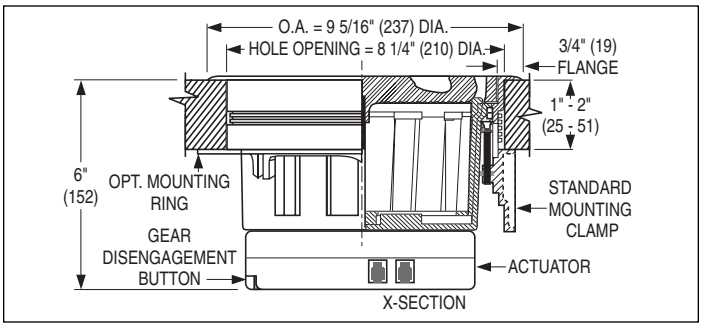
The **Nailor Model NFD-VAV Floor "Swirl" Diffusers with Actuators** are designed for use in raised access floor air distribution systems, where the floor cavity is used as a pressurized supply air plenum. An integral modulating actuator provides variable air volume control in cooling applications for precise zone temperature control. The NFD-VAV core design produces a low velocity helical "swirl" discharge air pattern. This design achieves high induction rates of room air, which optimizes mixing for maximum comfort conditions.

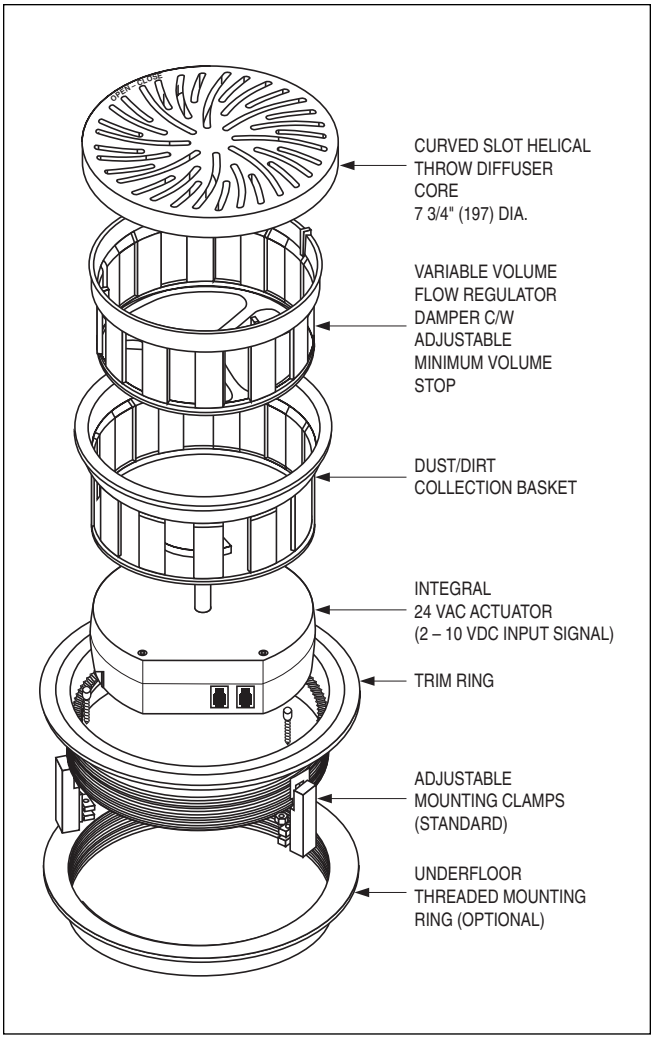
An architecturally appealing face design compliments any contemporary decor and is available as standard in a gray or black finish as well as a wide variety of custom colors.

Allowing extreme flexibility in space planning, the diffuser, once installed in the access floor panel, can be quickly relocated to accommodate changing conditions and floor layouts. **Performance Data – Refer to pages B5 and B6.**

FEATURES:

- Constructed of high impact, polycarbonate plastic which complies with UL Standard 94-5V for flammability.
- Nominal size 8" (203) dia. Low profile design.
- Variable volume flow regulator damper, features visual open/closed indication and includes built-in end stops.
- Compact 24 VAC direct drive proportional actuator.
- Min. and max. airflow limits are achieved by limiting the range of the control signal.
- Actuator features two RJ12 ports for simple interconnection using modular plenum rated cables. Multiple units can be 'daisy-chained' together.
- Standard 12 ft. modular plenum rated cables, for interconnection between diffusers, allows diffusers to be spaced on 10 ft. intervals (20 ft. cables optional).
- Optional thermostat, thermostat cable and power supply modules are available.
- Rugged trim ring design secures carpet and prevents edges from fraying.
- Unique adjustable mounting clamp design adapts to any floor thickness and provides simple and secure installation. Permits installation from above the floor without removal of the floor panel or carpet.
- Optional underfloor mounting ring available.
- Standard finish is GR Gray or BK Black core and trim ring. Damper and basket are black. Other finishes are available.





Control Diagram

Model NFD-VAV • Floor "Swirl" Diffuser

DESCRIPTION:

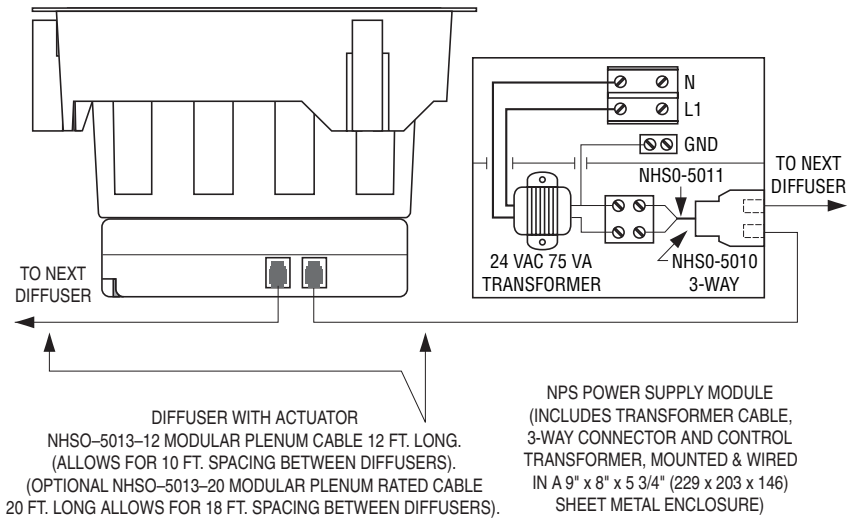
The Nailor NFD-VAV floor diffuser is designed to provide VAV control in cooling applications. Advanced micro-computer electronics and P+I control algorithms provide precise temperature control.

CONTROL FEATURES:

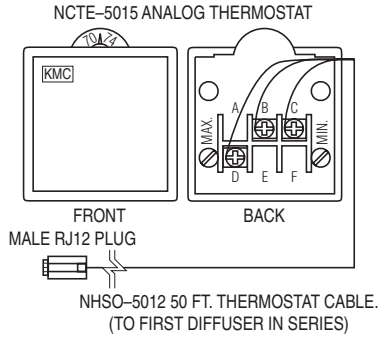
- Fast connection/wiring between units with RJ12 (phone jack) connections. Allows units to be quickly installed or relocated.
- Compact direct-drive 24 VAC actuator utilizes a 2 – 10 VDC control signal for precise airflow control.
- Standard 12 ft. modular plenum rated cables, for interconnection between diffusers, allows diffusers to be spaced on 10 ft. intervals (20 ft. cables optional).
- Power supply modules allow connection of up to 12 units on each line voltage connection (6 diffusers on each side) (8 units total or 4 on each side with optional 20 ft. cables).
- Each thermostat can control a maximum of 3 power supplies.
- Minimum and maximum airflow limits are adjusted underneath the thermostat cover.

ACCESSORIES:

- NCTE-5015-10 °F Scale Thermostat or NCTE-5015-11 °C Scale Thermostat.
- NHSO-5012 50 ft. Thermostat Cable.
- Power Supply Module (includes NHSO-5011 transformer cable, NHSO-5010 3-way connector and transformer mounted & wired in a sheet metal enclosure):
NPS-120 120 Volt Supply Voltage, NPS-277 277 Volt Supply Voltage,
NPS-240 240 Volt Supply Voltage or NPS-480 480 Volt Supply Voltage.



DETAIL A



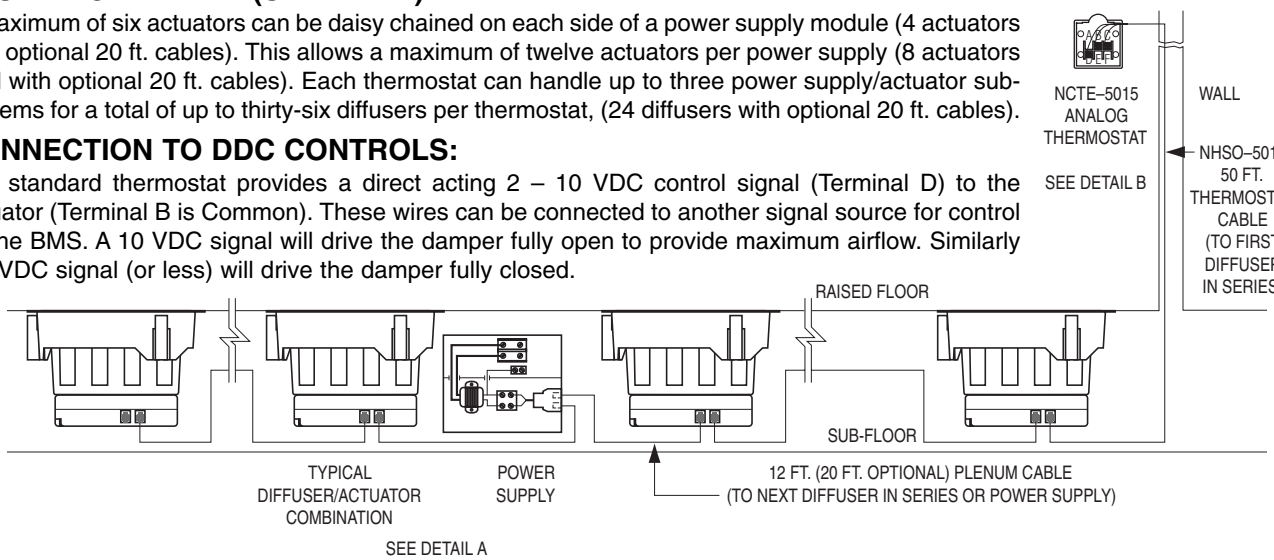
DETAIL B

SYSTEM OVERVIEW (SIDE VIEW):

A maximum of six actuators can be daisy chained on each side of a power supply module (4 actuators with optional 20 ft. cables). This allows a maximum of twelve actuators per power supply (8 actuators total with optional 20 ft. cables). Each thermostat can handle up to three power supply/actuator sub-systems for a total of up to thirty-six diffusers per thermostat, (24 diffusers with optional 20 ft. cables).

CONNECTION TO DDC CONTROLS:

The standard thermostat provides a direct acting 2 – 10 VDC control signal (Terminal D) to the actuator (Terminal B is Common). These wires can be connected to another signal source for control by the BMS. A 10 VDC signal will drive the damper fully open to provide maximum airflow. Similarly a 2 VDC signal (or less) will drive the damper fully closed.



HOW TO SPECIFY OR TO ORDER

(Show complete Model Number and Size, unless "Default" is desired).

VAV Floor "Swirl" Diffuser – Model NFD-VAV

NFD-VAV - 08 - MC - 12 - GR

BASE MODEL
- VAV Floor Diffuser — NFD-VAV

NOMINAL SIZE
- 8" (203) nom. dia. (default) — 08

FINISH
- Gray — GR
- Black — BK
- Special (custom color by architect) — SP

ACTUATOR CABLE
- 12 ft. long (default) — 12
- 20 ft. long — 20

MOUNTING
- Mounting Clamps (default) — MC
- Mounting Ring — MR

Note:

1. Thermostats, thermostat cable and power supplies have individual model numbers (see previous page).

Specification Text File

SUGGESTED SPECIFICATION:

Furnish and install **Nailor Model NFD-VAV Floor "Swirl" Diffusers with Actuators** of the size and type shown on the plans and air distribution schedules. Units shall be complete with all connecting cables and power supply modules as shown. The diffusers shall be constructed entirely of high impact polycarbonate plastic which complies with UL Standard 94-5V for flammability. The core design shall produce a low velocity helical "swirl" discharge air pattern maximizing induction and comfort in the occupied zone. A variable volume flow regulator damper shall be provided with an integral 24 VAC direct drive actuator which operates from a 2 – 10 VDC control signal for precise airflow control. The actuator shall incorporate two RJ12 ports for simple interconnection using modular plenum rated cables and allowing multiple units to be daisy chained together. Each diffuser shall include a standard 12 ft. (20 ft. optional) modular plenum rated cable, for interconnection between diffusers, allowing diffusers to be spaced on 10 ft. (18 ft. optional) intervals. The damper shall have visual open/closed indication and include an adjustable minimum volume stop. The diffusers shall incorporate a removable dust/dirt collection basket to catch anything that might fall through the diffuser face. Three universally adjustable mounting clamps shall be provided for each diffuser to permit installation from above the floor without removal of the floor panel or carpet.

Finish on visible surfaces shall be (GR Gray or BK Black) (other finishes are available).

Power supply modules shall be provided for each diffuser system as shown on the plans and air distribution schedules. Modules shall include a 120 volt control transformer (277, 240 or 460 volt optional) mounted and wired in a protective control enclosure. All electrical components shall be ETL or UL listed or recognized and installed in accordance with the National Electrical Code. The entire assembly shall be ETL listed and so labeled.

Each diffuser system shall be complete with a 50 ft. plenum rated cable for connection to a thermostat or to the DDC/BMS system as provided by others.

(Optional) Each zone shall be complete with an analog 2 – 10 VDC thermostat as shown on the plans. Thermostats shall incorporate advanced micro-computer electronics that include P+I control algorithms for precise temperature control. Thermostat shall have temperature setpoint adjustment in degrees Fahrenheit (Celsius optional) and include a light almond (ash white optional) setpoint cover.

The manufacturer shall provide published performance data for the diffuser, which shall be tested in accordance with ANSI/ASHRAE Standard 70 – 1991.

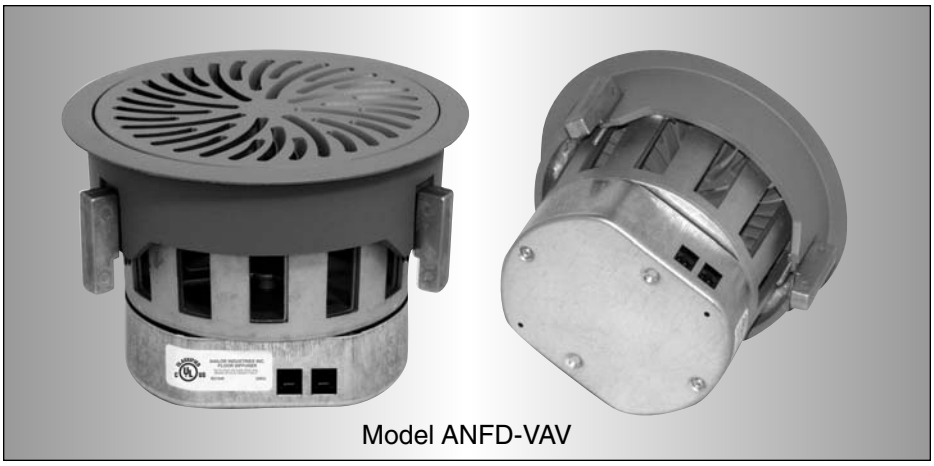
VAV FLOOR "SWIRL" DIFFUSER WITH ACTUATOR

- VARIABLE AIR VOLUME
- ALUMINUM
- ROUND, FLOOR MOUNTED
- HIGH PERFORMANCE

Model:

ANFD-VAV

CLASSIFIED C UL US
NAILOR INDUSTRIES INC.
FLOOR DIFFUSER
''AS TO HEAT RELEASE RATE AND SMOKE OPTICAL DENSITY ONLY''
R21545 25KU



Model ANFD-VAV

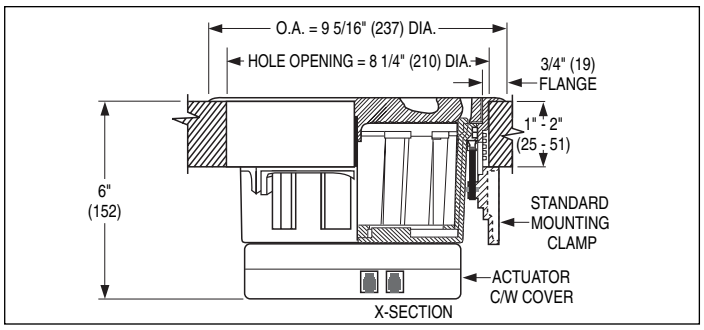
The **Nailor Model ANFD-VAV Floor "Swirl" Diffusers with Actuators** are designed for use in raised access floor air distribution systems, where the floor cavity is used as a pressurized supply air plenum. An integral modulating actuator provides variable air volume control in cooling applications for precise zone temperature control. The ANFD-VAV core design produces a low velocity helical "swirl" discharge air pattern. This design achieves high induction rates of room air, which optimizes mixing for maximum comfort conditions.

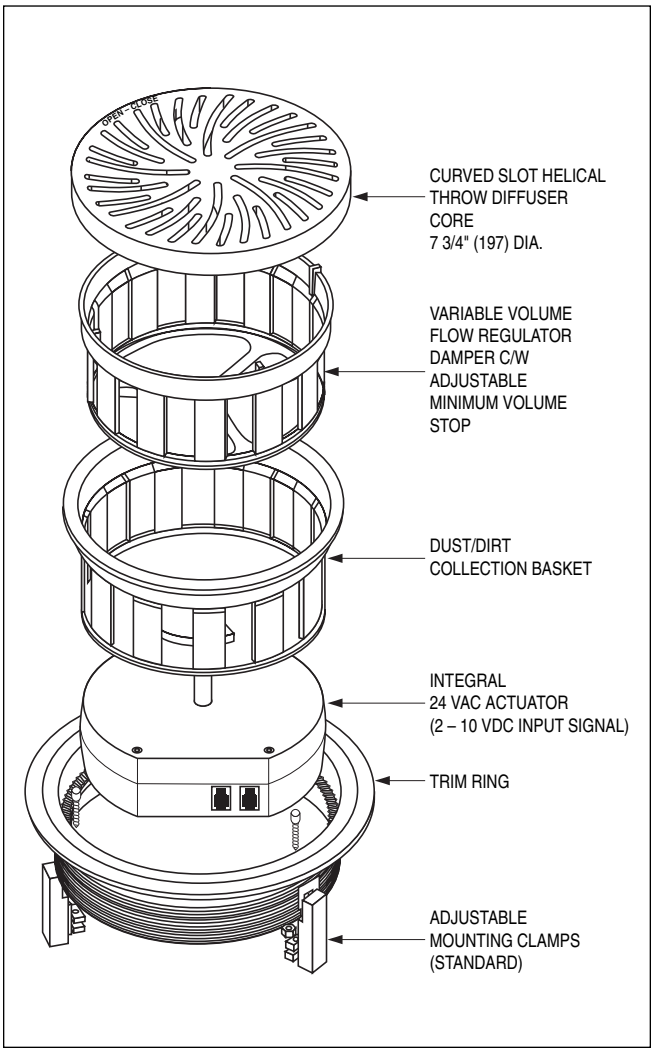
An architecturally appealing face design compliments any contemporary decor and is available as standard in a gray or black textured finish as well as a wide variety of custom colors.

Allowing extreme flexibility in space planning, the diffuser, once installed in the access floor panel, can be quickly relocated to accommodate changing conditions and floor layouts. **Performance Data – Refer to pages B9 and B10.**

FEATURES:

- Meets all the requirements of NFPA 90A
- Complete assembly is UL tested and classified in accordance with UL Standard 2043.
- Diffuser and components constructed of cast aluminum.
- Nominal size 8" (203) dia. Low profile design.
- Variable volume flow regulator damper, features visual open/closed indication and includes built-in end stops.
- Compact 24 VAC direct drive proportional actuator c/w cover.
- Min. and max. airflow limits are achieved by limiting the range of the control signal.
- Actuator features two RJ12 ports for simple interconnection using modular plenum rated cables. Multiple units can be 'daisy-chained' together.
- Standard 12 ft. modular plenum rated cables, for interconnection between diffusers, allows diffusers to be spaced on 10 ft. intervals (20 ft. cables optional).
- Optional thermostat, thermostat cable and power supply modules are available.
- Rugged trim ring design secures carpet and prevents edges from fraying.
- Unique adjustable mounting clamp design adapts to any floor thickness and provides simple and secure installation. Permits installation from above the floor without removal of the floor panel or carpet.
- Standard finish is GRT Gray or BKT Black textured baked enamel. Other finishes are available.





Control Diagram

Model ANFD-VAV • Floor "Swirl" Diffuser

DESCRIPTION:

The Nailor ANFD-VAV aluminum floor diffuser is designed to provide VAV control in cooling applications. Advanced micro-computer electronics and P+I control algorithms provide precise temperature control.

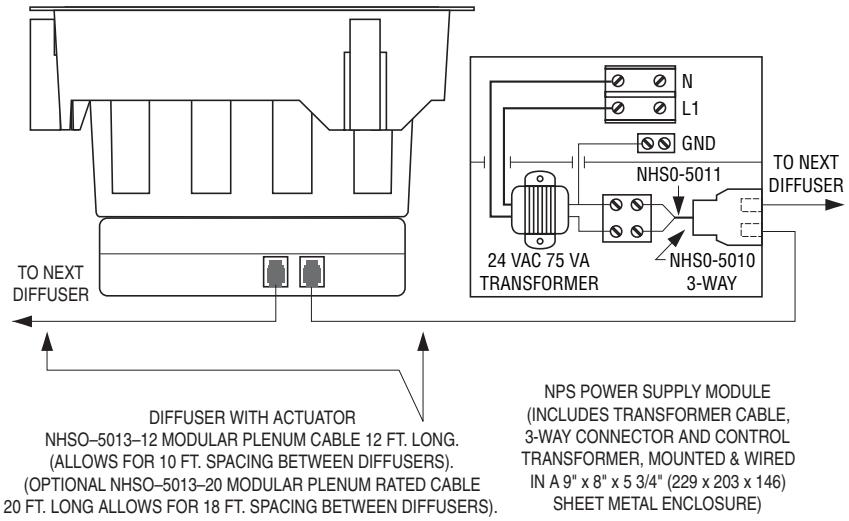
CONTROL FEATURES:

- Fast connection/wiring between units with RJ12 (phone jack) connections. Allows units to be quickly installed or relocated.
- Compact direct-drive 24 VAC actuator utilizes a 2 – 10 VDC control signal for precise airflow control.
- Standard 12 ft. modular plenum rated cables, for interconnection between diffusers, allows diffusers to be spaced on 10 ft. intervals (20 ft. cables optional).
- Power supply modules allow connection of up to 12 units on each line voltage connection (6 diffusers on each side) (8 units total or 4 on each side with optional 20 ft. cables).
- Each thermostat can control a maximum of 3 power supplies.
- Minimum and maximum airflow limits are adjusted underneath the thermostat cover.

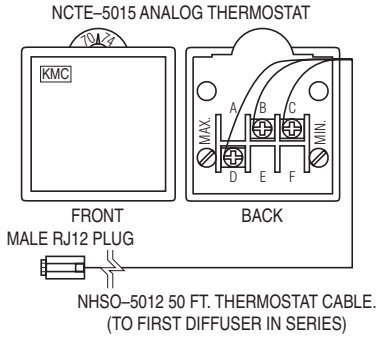
ACCESSORIES:

- NCTE-5015-10 °F Scale Thermostat or NCTE-5015-11 °C Scale Thermostat.
- NHSO-5012 50 ft. Thermostat Cable.
- Power Supply Module (includes NHSO-5011 transformer cable, NHSO-5010 3-way connector and transformer mounted & wired in a sheet metal enclosure):

NPS-120 120 Volt Supply Voltage, NPS-277 277 Volt Supply Voltage, NPS-240 240 Volt Supply Voltage or NPS-480 480 Volt Supply Voltage.



DETAIL A



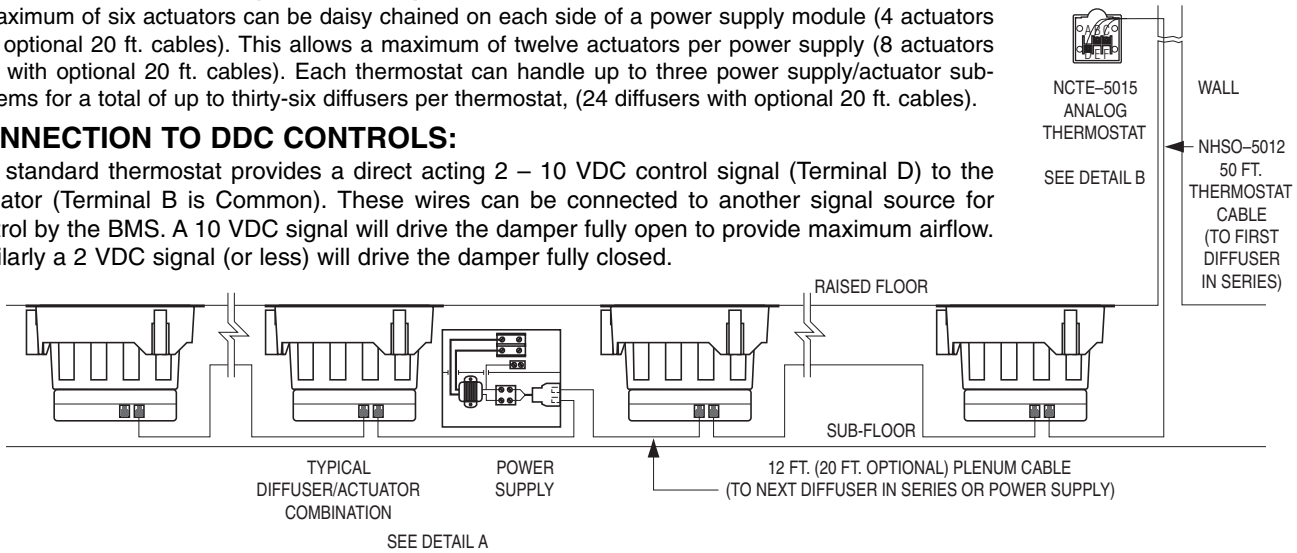
DETAIL B

SYSTEM OVERVIEW (SIDE VIEW):

A maximum of six actuators can be daisy chained on each side of a power supply module (4 actuators with optional 20 ft. cables). This allows a maximum of twelve actuators per power supply (8 actuators total with optional 20 ft. cables). Each thermostat can handle up to three power supply/actuator sub-systems for a total of up to thirty-six diffusers per thermostat, (24 diffusers with optional 20 ft. cables).

CONNECTION TO DDC CONTROLS:

The standard thermostat provides a direct acting 2 – 10 VDC control signal (Terminal D) to the actuator (Terminal B is Common). These wires can be connected to another signal source for control by the BMS. A 10 VDC signal will drive the damper fully open to provide maximum airflow. Similarly a 2 VDC signal (or less) will drive the damper fully closed.



HOW TO SPECIFY OR TO ORDER

(Show complete Model Number and Size, unless "Default" is desired).

VAV Aluminum Floor "Swirl" Diffuser – Model ANFD-VAV

ANFD-VAV - 08 - MC - 12 - GRT

BASE MODEL

- VAV Aluminum Floor Diffuser	ANFD-VAV

NOMINAL SIZE

- 8" (203) nom. dia. (default)	08

FINISH

- Gray (textured)	GRT
- Black (textured)	BKT
- Special (custom color by architect)	SPT

ACTUATOR CABLE

- 12 ft. long (default)	12
- 20 ft. long	20

MOUNTING

- Mounting Clamps (default)	MC

Note:

1. Thermostats, thermostat cable and power supplies have individual model numbers (see previous page).

Specification Text File

SUGGESTED SPECIFICATION:

Furnish and install **Nailor Model ANFD-VAV Aluminum Floor "Swirl" Diffusers with Actuators** of the size and type shown on the plans and air distribution schedules. Units shall be complete with all connecting cables and power supply modules as shown. The diffusers shall be constructed entirely of cast aluminum and the actuator shall be mounted within a protective enclosure. The entire assembly shall be tested and classified in accordance with UL Standard 2043. The diffuser shall meet all requirements of NFPA 90A. The core design shall produce a low velocity helical "swirl" discharge air pattern maximizing induction and comfort in the occupied zone. A variable volume flow regulator damper shall be provided with an integral 24 VAC direct drive actuator which operates from a 2 – 10 VDC control signal for precise airflow control. The actuator shall incorporate two RJ12 ports for simple interconnection using modular plenum rated cables and allowing multiple units to be daisy chained together. Each diffuser shall include a standard 12 ft. (20 ft. optional) modular plenum rated cable, for interconnection between diffusers, allowing diffusers to be spaced on 10 ft. (18 ft. optional) intervals. The damper shall have visual open/closed indication and include an adjustable minimum volume stop. The diffusers shall incorporate a removable dust/dirt collection basket to catch anything that might fall through the diffuser face. Three universally adjustable mounting clamps shall be provided for each diffuser to permit installation from above the floor without removal of the floor panel or carpet.

Finish on visible surfaces shall be (GRT Gray or BKT Black) textured baked enamel (other finishes are available).

Power supply modules shall be provided for each diffuser system as shown on the plans and air distribution schedules. Modules shall include a 120 volt control transformer (277, 240 or 460 volt optional) mounted and wired in a protective control enclosure. All electrical components shall be ETL or UL listed or recognized and installed in accordance with the National Electrical Code. The entire assembly shall be ETL listed and so labeled.

Each diffuser system shall be complete with a 50 ft. plenum rated cable for connection to a thermostat or to the DDC/BMS system as provided by others.

(Optional) Each zone shall be complete with an analog 2 – 10 VDC thermostat as shown on the plans. Thermostats shall incorporate advanced micro-computer electronics that include P+I control algorithms for precise temperature control. Thermostat shall have temperature setpoint adjustment in degrees Fahrenheit (Celsius optional) and include a light almond (ash white optional) setpoint cover.

The manufacturer shall provide published performance data for the diffuser, which shall be tested in accordance with ANSI/ASHRAE Standard 70 – 1991.