nad KLIMA

MADE IN CANADA

FDD

Flexible air diffuser

catalog 1.1.4

McKesson warehouse, Montréal, Canada

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Version 2019

Arena, Lévis, Canada

FDD

Presentation and benefits

The FDD is a high induction air diffuser fabricated of fully waterproof permeated polyester PVC (Polyvinyl Chloride). This diffuser is made to address the ventilation needs of spaces with very large volumes of air.

The precise perforations of the FDD are created by laser, according to the data provided by our special software, which allows a diffusion of air and a homogeny (temperature, humidity and density) offering comfort to the occupants.

The positioning of the perforations creates a de-stratification of the air in spaces up to 18 meters (60 ft) high. It is strongly recommended for efficiency and energy saving; these represent 35% savings by de-stratification and more than 75% savings for the majority of applications, when heating fresh air in an industrial setting.

Benefits

- High induction flexible diffuser which allows homogeny of the air in a room: temperature, humidity and density.
- Increased comfort in the occupied zone
  - Comfortable air movement
  - Low temperature variances
  - Low noise
- Energy efficiency from the recovery of heat lost at the ceiling
  - > 30% heating savings by air destratification for a ceiling > 6 m.
  - > 75% heating savings of fresh air in an industrial setting (heat recovery procedures)
- Perforations adapted to the needs according to:
  - The length, width and height of the room
  - Air volume
  - Δ of temperature (heating and cooling)

Areas of application

- Commercial industry
- Manufacturing industry
- Food industry
- Warehouses
- Shops
- Shopping malls
- Sports complexes: arenas, swimming pools, gymnasiums, stadiums

- **Easy to maintain**
  - Easy to clean
  - Low accumulation of dust in the duct because dust is purged by the holes.
- **Durability**
  - Resistance to dust, UV rays, salty environments, condensation, fungi and mold.
- **Easy installation**
  - Installation using a aluminum suspension rail
  - No sealing required
  - Fewer suspension rods
- **Light, easy to transport**

Configuration

Composition

The FDD diffuser is a flexible circular diffuser with perforations.

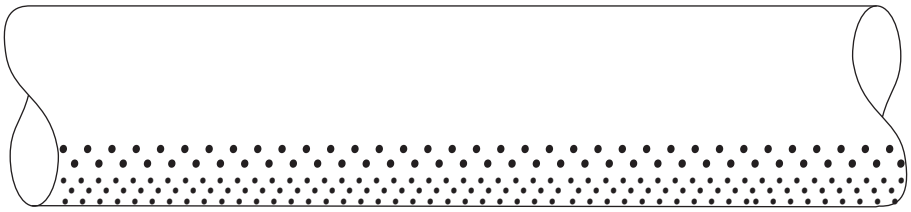
Each section can reach up to 15 m (50 ft) in length. The FDD diffuser is available in any diameter from 200 mm (8 in) to 1473 mm (58 in).

A PVC extrusion is integrated into the diffuser to allow its suspension.
At each end, a metal collar or a zipper is used to join FDD diffuser sections together.

Accessories

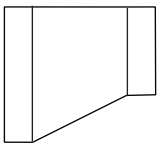
The elbows, reducers and end caps are available in polyvinyl. All of the standard accessories (elbows, sleeves, reducers, multi-branch connectors, etc.) are available in the precise dimensions of the diffusers.

For air balancing reasons, reducers are required between sections.

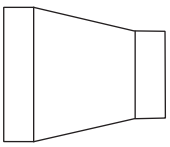


Reducers

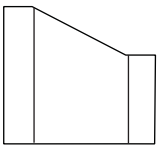
Offset: Top



Centered

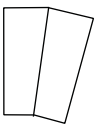


Offset: Bottom

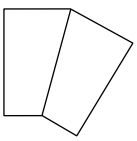


Elbows

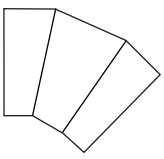
15°



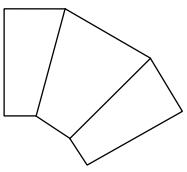
30°



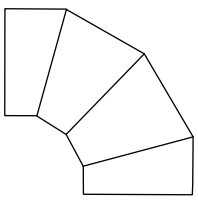
45°



60°



90°



Cap

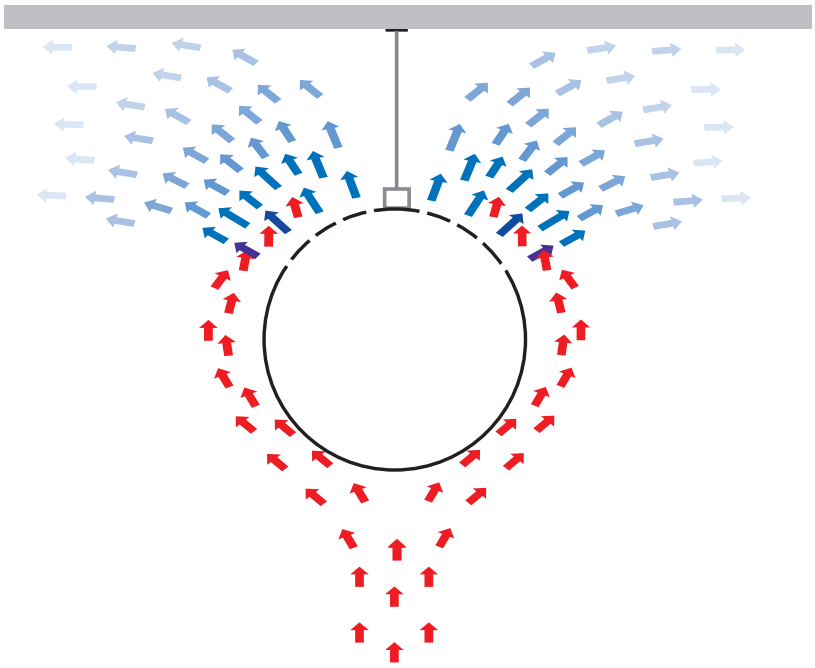
Mode of operation

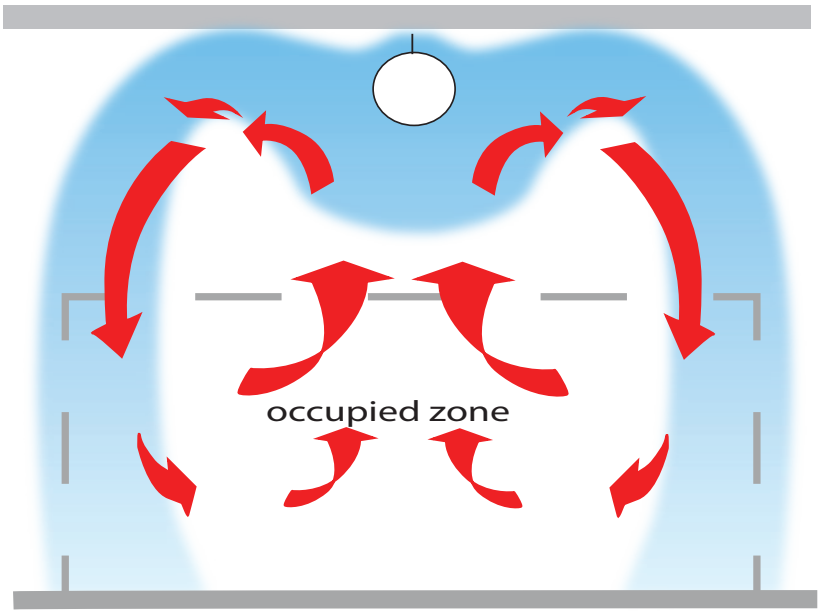
General operation

The FDD flexible diffuser is made to surpass the technical limits of traditional air diffusion systems. Its function is based on the principle of high induction diffusion. The perforations, of various diameters, and their positioning on the FDD promote a displacement of a large quantity of ambient air (see the illustration below).

The thermal exchange between the blown air and the ambient air occurs close to the FDD, and the temperatures rapidly near isothermal levels. The risk of stratification is eliminated without creating drafts in the occupied zone.

Representation of the induction effect generated by the FDD





Fabrication and perforation system

Each FDD diffuser is made according to specific requirements. The FDD achieves a level of performance which is adapted to the clients' environment and needs.

To determine the hole quantity, placement, size and distribution on the FDD diffuser, NAD Klima enters specific data into a software to obtain the hole pattern.

Criteria for FDD manufacturing:

- Dimensions of the area of coverage
- Diffuser placement
- Air volume
- Diffuser length
- Diffuser diameter
- Available static pressure
- Height between the floor and the bottom of the diffuser
- Level of humidity in the room
- Temperature in the diffuser (winter and summer)
- Temperature in the room (winter and summer)
- Desired projection
- Speed at head height (1.8 m)

Mode of operation

The particularity of the FDD allows air diffusion to be configured to the room.

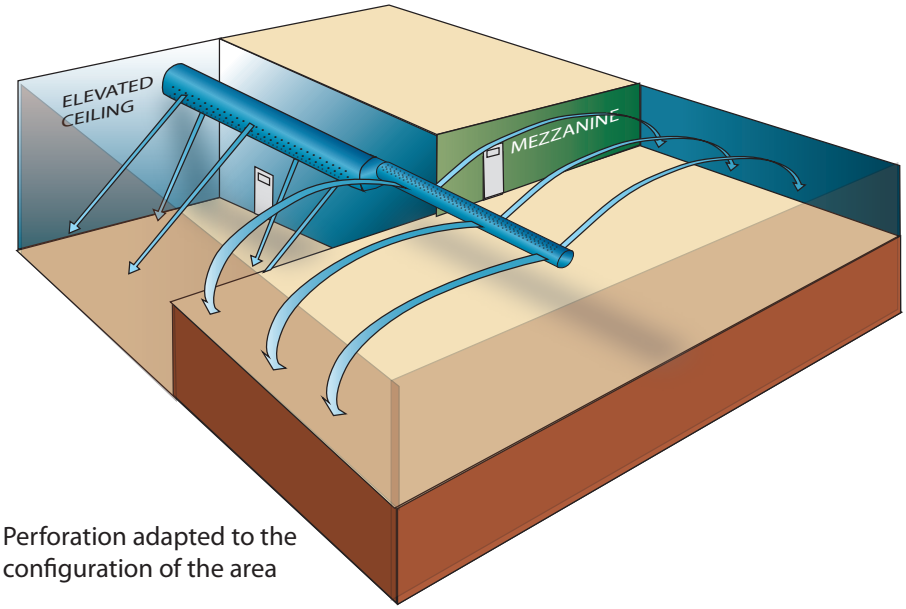
Indeed, for areas with **elevated heights** (H > 6 m (20 ft)), the FDD is perforated to diffuse air downwards, for both heating and cooling modes.

In the case of heating mode, air is directed downwards to oppose the force of gravity exerted on the different densities of warm blown air and cooler ambient air (figure A). The large mass of air circulates in a controlled manner, from the top of the space downwards, resulting in an optimal temperature mixture. The variation in temperature throughout the occupied area is < 1°C.

For rooms with **lower ceilings** (H < 6 m (20 ft)), air is pushed upwards through the FDD (see figure B). For cooling mode, the multitude of perforations with different diameters allow air to be pushed upwards. It then mixes with the hot air of the room which often accumulates at ceiling height.

The air mixture obtained follows a circular motion through the entire width of the space. It is due to the high induction generated by the FDD, and to the air rising, which is due to the low pressure created below the FDD.

The same phenomena are observed in heating mode.



Perforation adapted to the configuration of the area

Height of the room	Diffusion mode

H > 6m (20 ft)

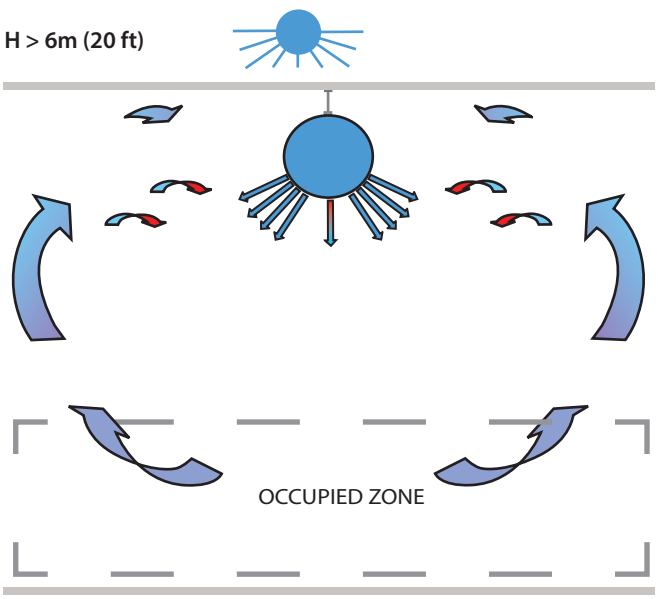


Figure A: Heating mode at an elevated height

H < 6m (20 ft)

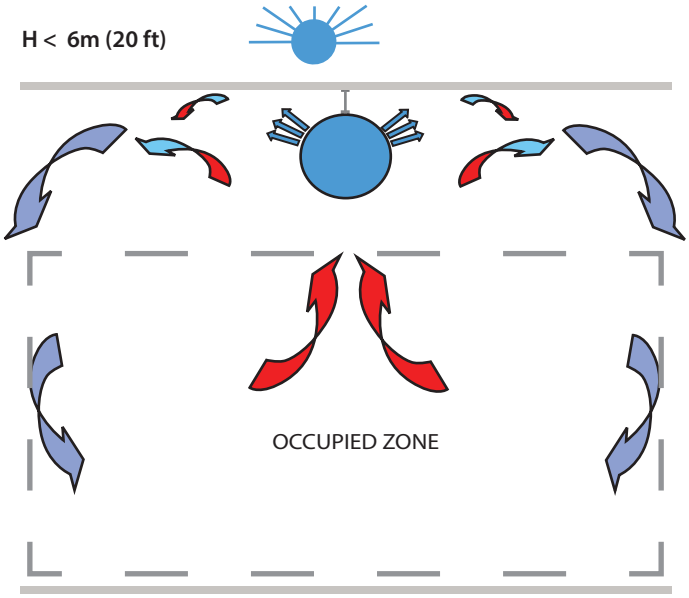


Figure B: Cooling mode at a low height

Mode of operation

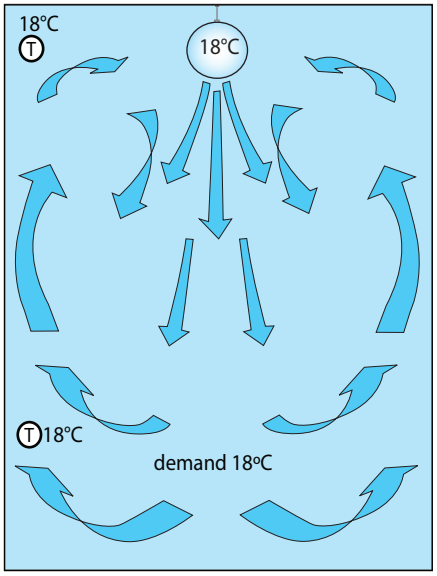
Heating from the ceiling (control)

When the diffuser is installed at 4.6 m (15 ft) and higher and the air flow is being used for heating, a control with two temperature sensors must be established. Ⓣ

The first sensor is installed at 1.5 m (5 ft) from the ground and the second at the ceiling. The average temperature reading between the two (2) sensors allows the system to start and stop in heating. This will provide the quickest response to heating needs when there is a large variation in temperature. This phenomenon is produced, for example, when there is a change from night to day or when a garage door is left open for long periods in winter.

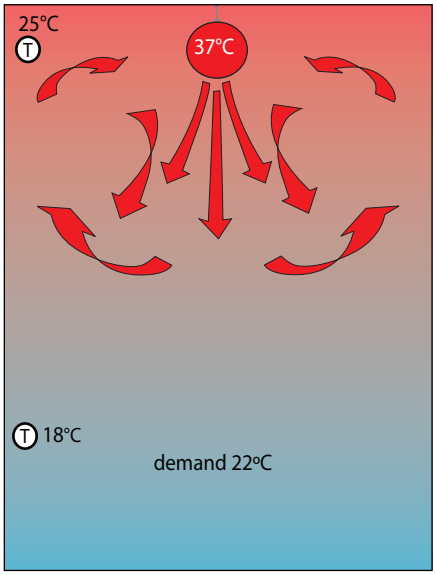
The circuit diagrams 1 to 4 illustrate this phenomenon.

Circuit diagram 1



During the night the temperature drops to 18°C.

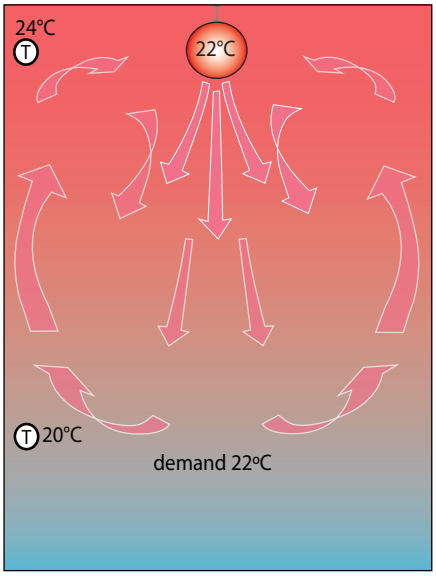
Circuit diagram 2



In the morning, a request for 22°C is made. The heating system is switched on.

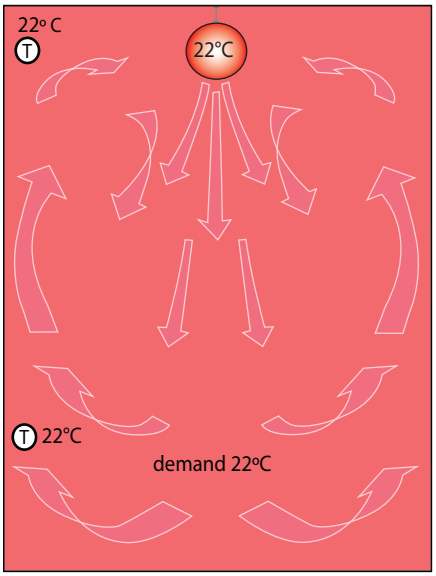
Note:
When heating is external to the system, like a radiant gas system or a heater, it is not necessary to have a double sensor device. A single thermostat in the occupied zone is sufficient.

Circuit diagram 3



The average temperature reaches 22°C, the heating is cut off.
The FDD diffuser de-stratifies the room; the temperature difference between the two (2) sensors is diminished.

Circuit diagram 4



The demand is met and the temperature is uniform.

Mode of operation

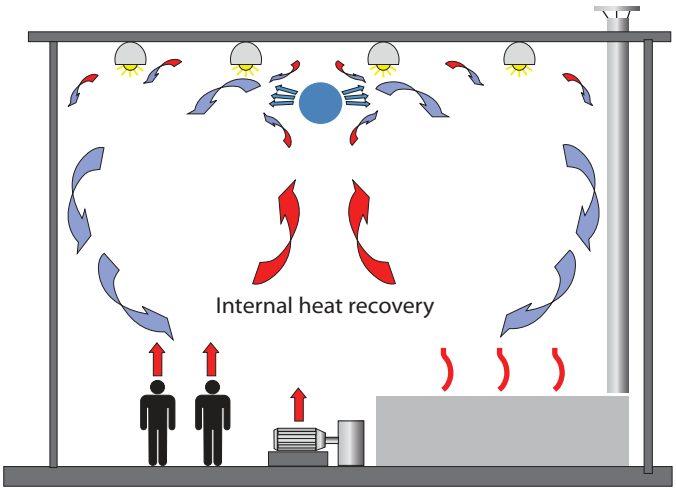
Heat recovering

All spaces, regardless of their use, require proper ventilation compliant to established norms. This aeration is only possible if the ventilation system in place is efficient. Supplying a room with outside air in winter without heating is dependent on external temperatures and the internal heat generated by heat sources (heat generated by machines, lighting and by the employees, etc.). That has become possible with the high induction FDD diffuser.

In this type of situation, in a space where internal heat sources are very high, it allows for much more significant energy savings. The higher the amount of heat, the more the FDD is efficient.

This efficiency is based on the FDD's single diffusion technique, consisting of the diffusion of a large number of micro-jets of air which travel through holes (perforations). The positioning and various diameters of the holes distinguish the FDD from traditional ventilation systems. Each micro-jet moves a quantity of ambient air according to the Venturi principle. The induced air flow increases with the speed of the jet. The total volume of displaced air is increased.

Representation of internal heat recovery by the FDD



Transcontinental printing, Montréal, Canada

Mode of operation

Design guide

If there is an accessory (elbow, branch) situated prior to the diffuser, we recommend:

- In the case of a circular section, installing a straight rigid section 3 times the length of the diffuser's diameter, between the accessory and the entrance of the diffuser.
(See illustration A, below)

- In the case of a rectangular section, installing a straight rigid section 1.5 times the length of the diffuser's diameter, between the accessory and the entrance of the diffuser.

- Installing a balancing damper in front of these straight rigid sections.

If, for practical reasons, it is impossible to install these straight rigid sections in front of the diffuser, we recommend installing air deflectors in the accessory.

Progressive method of operation:

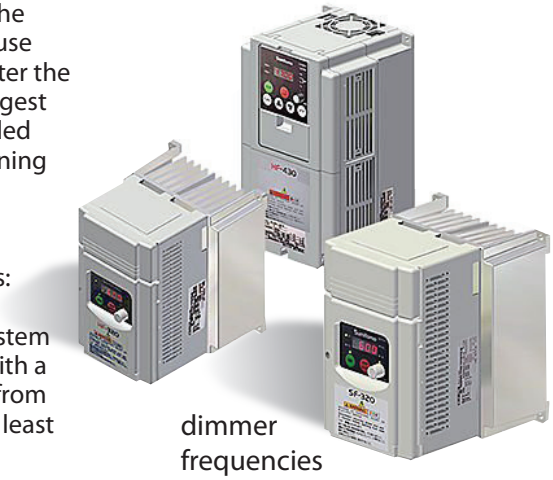
The majority of FDD diffusers are sensitive to vibrations and the jolt effect provoked by a sudden start of the ventilation unit.

The ventilator must be started gradually to avoid causing a shock at the end of the FDD diffuser. We can use existing shutters in the unit to alter the starting airflow rate. We also suggest the automatic mode to be avoided and the fan always to be left running (fan on).

To avoid this type of situation, we recommend two (2) solutions:

- Install a frequency variation system (drive) in the ventilation unit with a start-up sequence graduating from 0% to 100% over a period of at least two (2) minutes.

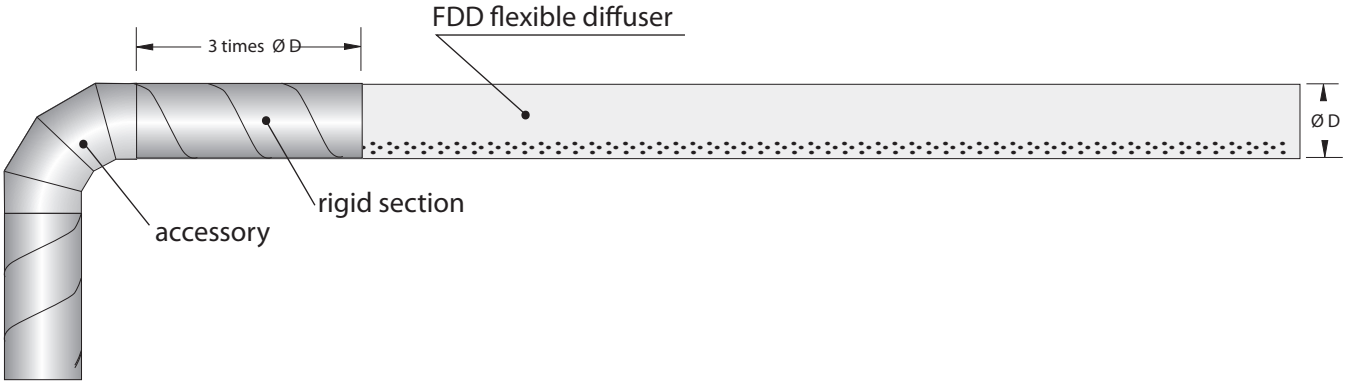
- Install a system of motorized shutters in the unit or upstream on the diffuser.
Open them progressively over a period of two (2) minutes when the ventilation unit is started. In certain situations, programming the existing unit shutters can be sufficient.



dimmer
frequencies

motorized damper

Illustration A



Scope of applications

Minimum installation space

Distance from floor to underside of FDD (H)	Recommended spacing between FDDs X MAXIMUM
m (ft)	m (ft)
≤ 4.3 (14)	RRA recommended
≤ 6 (20)	6 (20)
6 - 10 (20 - 30)	10 (30)
10 - 15 (30 - 50)	12 (40)

Selecting the diameter for a flow less than 1400 cfm

Diameter selection for the FDD diffuser should be made using the parameters on the following table.

Flow range	Ø recommended
below 280 cfm	200 mm (8 in)
281cfm to 460 cfm	251 mm (10 in)
461cfm to 650 cfm	303 mm (12 in)
651 cfm to 1100 cfm	353 mm (14 in)
1101 cfm to 1400 cfm	403 mm (16 in)

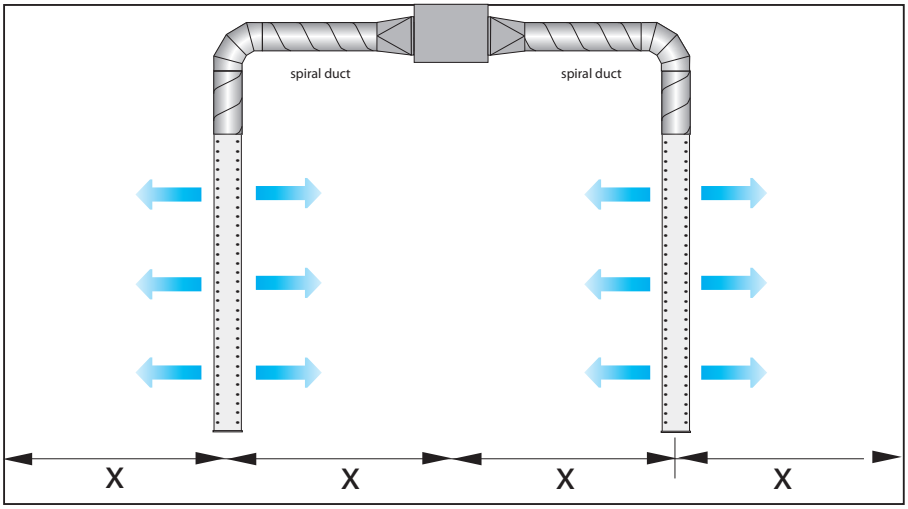
For a flow higher than 1400 cfm,
select a diffuser diameter
(see diameters in the codification on page 15)
for a maximum air speed of 1000 fpm.

Aerodynamic balancing and reducer placement

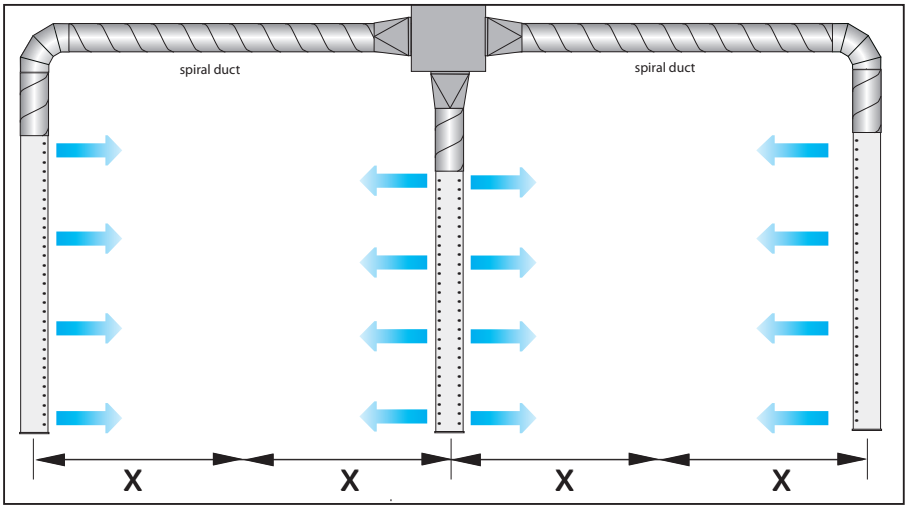
To optimize a uniform airflow in the FDD diffuser, the total length must not exceed 15 m (49 ft) without using a reducer or a balancing damper.

For a diffuser longer than 15 m (49 ft), a reducer must be installed at the center (see bottom).

Spacing of installation



In replacement of spiral ducts (provided by the contractor), NAD Klima can supply passive and sleek ducts.



Detailed manufacturing of a transformation

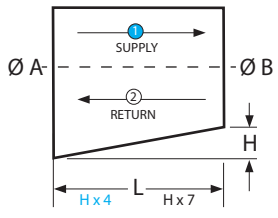
Flat on top Reducer

Orientation of the air flow

① H/L = 1/4
② H/L = 1/7

H = Ø A - Ø B

① L = H x 4
② L = H x 7



Detailed manufacturing of a transformation

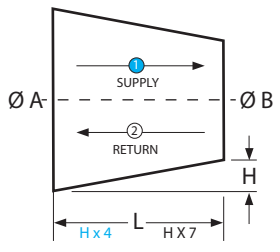
Centered Reducer

Orientation of the air flow

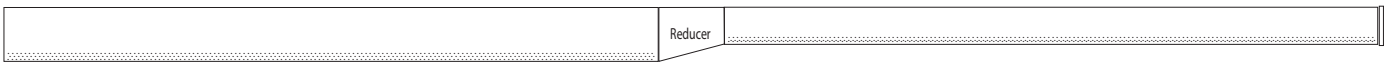
① H/L = 1/4
② H/L = 1/7

H = (Ø A - Ø B) ÷ 2

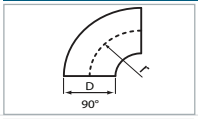
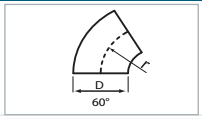
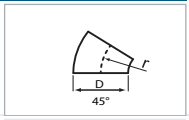
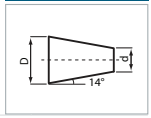
① L = H x 4
② L = H x 7



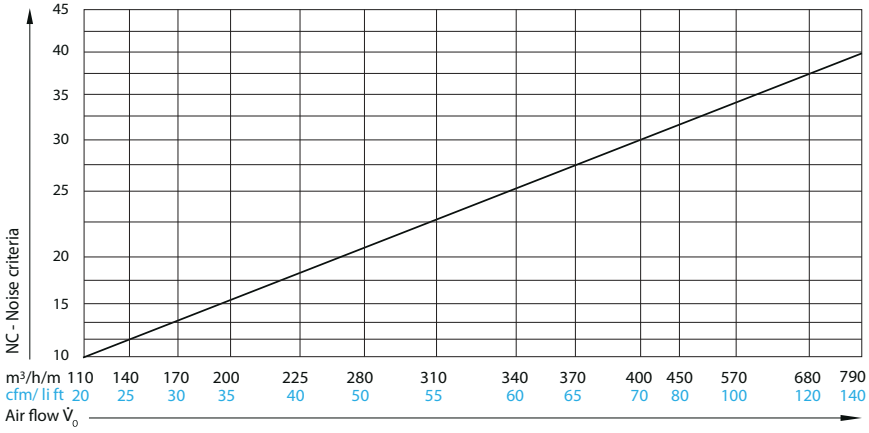
Note : The standard length of reducers is rounded to the next whole foot.
ex.: L = 1.3 ft will be: L = 2 ft



Pressure loss

ΔP diffuser		ΔP * Loss of pressure in the elbows $\frac{r}{D}$ = 1.5						ΔP * Reducer	
diffuser diameter " Ø "	ΔP Loss of pressure by diameter of the diffuser 5 m/s (1000 fpm)								
mm (in)	Pa / m (inches of water / 100 ft)	Pa	inches of water	Pa	inches of water	Pa	inches of water	Pa	inches of water
203 (8)	1.63 (0.20)	2.5	0.010	2.0	0.007	1.5	0.005	0.8	0.003
254 (10)	1.31 (0.16)	3.6	0.011	2.1	0.008	1.6	0.006		
305 (12)	1.06 (0.13)	3.0	0.012	2.3	0.009	1.8	0.008		
356 (14)	0.82 (0.10)	3.7	0.014	2.9	0.011	2.3	0.009		
406 (16)	0.73 (0.09)	3.9	0.014	3.0	0.012	2.5	0.010		
457 (18)	0.65 (0.08)	4.1	0.016	3.3	0.013	2.6	0.010		
508 (20)	0.57 (0.07)	4.2	0.017	3.3	0.013	2.8	0.011		
559 (22)	0.49 (0.06)	4.6	0.018	3.5	0.014	3.1	0.011		
610 (24)	0.41 (0.05)	5.0	0.020	3.8	0.016	3.6	0.012		
660 (26)	0.41 (0.05)	5.1	0.020	3.9	0.017	3.6	0.012		
711 (28)	0.37 (0.045)	5.3	0.021	4.0	0.017	3.7	0.014		
762 (30)	0.37 (0.045)	5.4	0.021	4.1	0.018	3.7	0.014		
813 (32)	0.33 (0.040)	5.5	0.022	4.2	0.018	3.9	0.015		
864 (34)	0.29 (0.035)	6.0	0.024	4.4	0.019	4.3	0.016		
914 (36)	0.29 (0.035)	6.1	0.024	4.4	0.019	4.3	0.016		
965 (38)	0.24 (0.030)	6.5	0.025	4.9	0.022	4.8	0.017		
1016 (40)	0.24 (0.030)	6.5	0.025	4.9	0.022	4.8	0.017		
1067 (42)	0.24 (0.030)	6.5	0.025	5.0	0.022	4.8	0.017		
1118 (44)	0.20 (0.025)	6.9	0.027	5.3	0.023	5.3	0.018		
1168 (46)	0.20 (0.025)	7.0	0.029	5.4	0.023	5.3	0.018		
1219 (48)	0.20 (0.025)	7.0	0.029	5.4	0.023	5.3	0.018		
1270 (50)	0.16 (0.020)	8.0	0.031	6.1	0.026	6.3	0.022		
1321 (52)	0.16 (0.020)	8.1	0.032	6.2	0.026	6.3	0.022		
1372 (54)	0.16 (0.020)	8.1	0.032	6.2	0.026	6.3	0.022		
1422 (56)	0.16 (0.020)	8.2	0.033	6.3	0.026	6.3	0.022		

* Based on ΔP = 0.82 Pa/m (0.1in water / 100 ft)

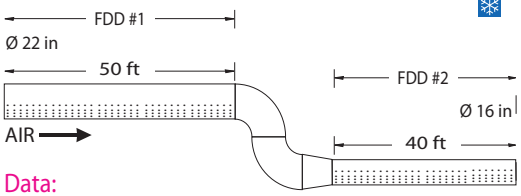


Correction factor for different air velocities in diffuser:

Air velocity - m/s (fpm)	3 (600)	4 (800)	5 (1000)*	6 (1200)	7 (1400)
NC diagram	- 5	- 3	0	+ 4	+ 7

Height m (ft)	ΔP (inlet) Pa (inches of water)	
≤ 6 (≤ 20)	75 (0.3)	
6 - 7.6 (20 - 25)	75 (0.3)	125 (0.5)
7.6 - 9.1 (25 - 30)	75 (0.3)	175 (0.7)
9.1 - 12.2 (30 - 40)	125 (0.5)	249 (1)
12.2 - 15.2 (40 - 50)	175 (0.7)	300 (1.2)

Example of calculation



Data:

- Total air flow: 2500 cfm
- Height of installation: 25 ft
- Air velocity in the diffuser: 1000 fpm

Required:

- What are the total losses of pressure ΔPt ?

Solution:

The loss of pressure in a diffuser is due to blockage of the holes, friction, and changes in the direction and diameter.

$\Delta P_t = \Delta P_{holes} + \Delta P_{FDD1} + \Delta P_{elbow\ 90°} + \Delta P_{reducer} + \Delta P_{FDD2}$

ΔP_{holes} = 0.7 in of water, for room height of 7.6 m (25 ft)

ΔP_{FDD1} = 15 m (50 ft) x (0.06/100) = 0.03 in of water, for a diffuser of 15 m (50 ft) long and a diameter of 559 mm (22 in)

$\Delta P_{elbow\ 90°}$ = 0.018 in of water

$\Delta P_{reducer}$ = 0.003 in of water

ΔP_{FDD2} = 12 m (40 ft) x (0.09/100) = 0.036 in of water, for a diffuser of 12 m (40 ft) long and a diameter of 406 mm (16 in)

Thus: ΔP_t = 0.8 in of water

Correction factor for different air velocities in diffuser:
ΔP = F x ΔP (v = 1000 fpm)

Speed of air in the diffuser	ΔP Loss of pressure per diameter of straight diffuser	ΔP Loss of pressure in the elbow	ΔP Loss of pressure in the reducer
m/s (fpm)	F	F	F
3 (600)	0.4	0.8	0.4
4 (800)	0.7	0.9	0.6
5 (1000)*	1.0	1.0	1.0
6 (1200)	1.4	1.1	1.4
7 (1400)	1.8	1.2	2.0

* Recommended

Available colours and weight

Available colours

01 Ⓢ Standard white
02 Cream white
03 Sable
04 Beige
05 Taupe
06 Brown
07 Terracotta
08 Yellow
10 Red
11 Burgundy
14 Ⓢ Standard blue
15 Ⓢ Marine blue
17 Emerald green
18 Forest green
19 Ⓢ Metallic grey
21 Ⓢ Standard grey
24 Black

NOTE: Due to the printing process, the colors may vary slightly from the original color.

Ⓢ = Standard, in stock

Mercedes Benz, Sherbrooke, Qué. Canada

Weight of diffuser

Ø diameter		Total weight	
mm	in	kg / m	lb / ft
203	8	1.17	0.79
254	10	1.26	0.85
305	12	1.35	0.91
356	14	1.43	0.96
406	16	1.52	1.02
457	18	1.61	1.08
508	20	1.69	1.14
559	22	1.78	1.20
610	24	1.87	1.26
660	26	1.95	1.31
711	28	2.04	1.37
762	30	2.13	1.43
813	32	2.21	1.49
864	34	2.30	1.55
914	36	2.39	1.60
965	38	2.47	1.66
1016	40	2.56	1.72
1067	42	2.65	1.78
1118	44	2.73	1.84
1168	46	2.82	1.90
1219	48	2.91	1.95
1270	50	2.99	2.01
1321	52	3.08	2.07
1372	54	3.17	2.13
1422	56	3.25	2.19
1473	58	3.34	2.25

Suspension system

The lightweight polyvinyl and the support mechanism allow for a rapid installation of the FDD. The installation consists in a suspension of a rail on the ceiling with 9.5 mm (3/8 in) threated rods supplied by the installer.

Once the rail is installed, the tube is slid onto the rail. It should be noted that the distance between the two suspension rods is 3 m (10 ft) or less, as illustrated in figure 2.

The FDD can be installed in two ways; either by single centered suspension on a rail (figure 3) or by a double lateral suspension with two rails (figure 4).

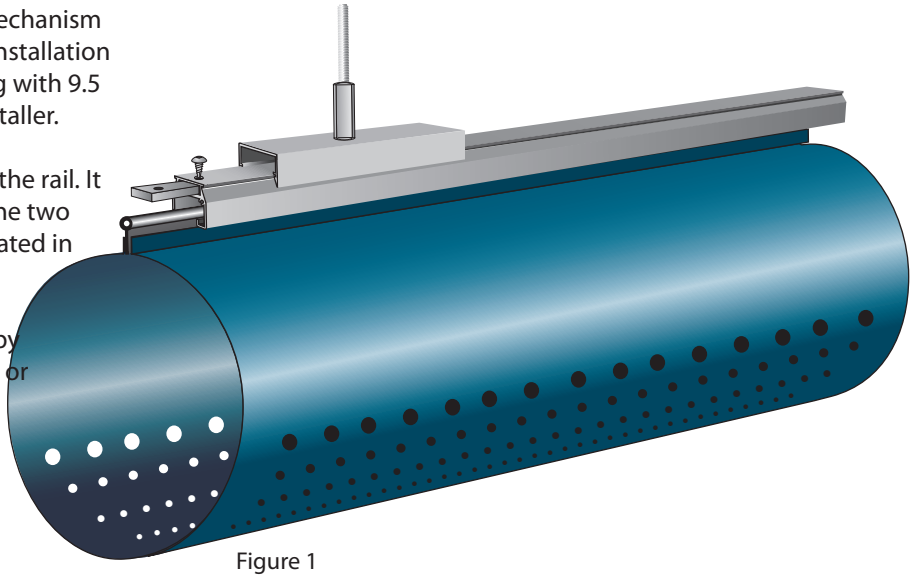


Figure 1

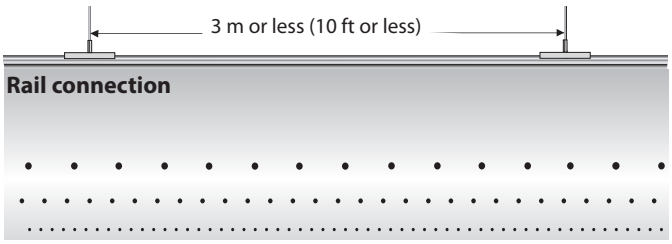
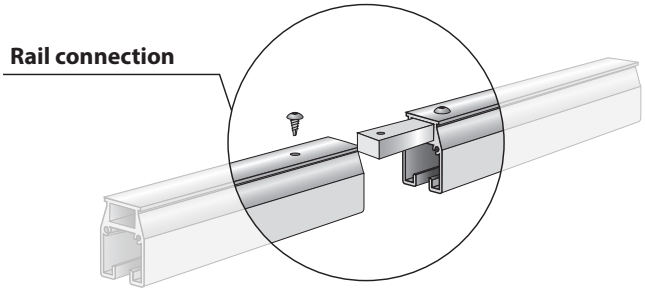


Figure 2



Single suspension, centered

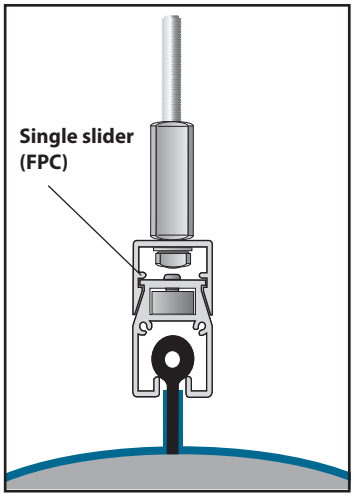


Figure 3

Double suspension, a rail on each side of the FDD diffuser

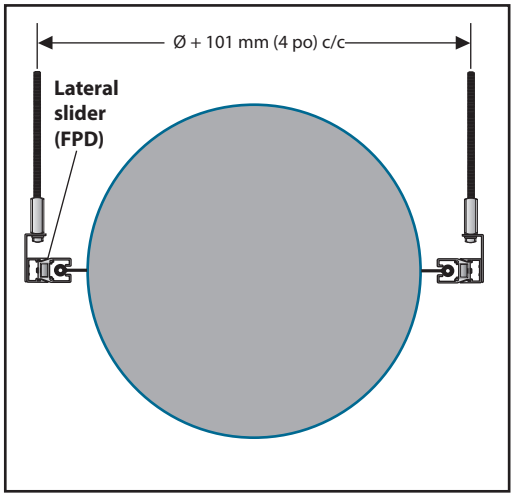


Figure 4

Note: a slider is provided per 1.5 m (5 ft) length

Auguste restaurant, Sherbrooke, Canada

Specifications

1. Description and physical characteristics

1.1 The FDD high induction air diffuser shall be made with PVC permeated polyester (Polyvinyl Chloride).

1.2 The polyester shall be made according to the ASTM-D 2136 standard "Standard test method for coated fabrics-low-temperature bend test".

1.3 The polyester used in the manufacture of the FDD shall be resistant to mechanical traction of 400 X 375 Lbp/in.

1.4 The polyester shall be qualified to NFPA 701, ASTM E-84 class 1 and CAN/ULC S102-10 standards, "Standard method of test for surface burning characteristics of building materials and assemblies".

1.5 The diffuser shall be treated for resistance to dust, UV rays, salty environments, condensation, fungi and mold.

1.6 The diffuser shall have a weight of 542g/m^2 (16 oz/$yard^2$).

1.7 The FDD diffuser shall have a diameter between 203 mm and 1524 mm.

1.8 Perforation of the diffuser shall be designed with the help of software.

1.9 For air balancing reasons, the reducers shall be made of polyester fabric and shall be installed at the center of the diffuser if they exceed 15 m (50 ft).

1.10 The diffusers shall have modern, smooth surfaces which are architecturally attractive and can be easily cleaned with a feather duster.

2. Installation and method of suspension

2.1 The flexible diffuser shall be slid into a suspended aluminum rail, offering a solution for varied types of ceilings. The rail can be painted the color chosen by the architect or customer, according to the RAL color chart.

2.2 The FDD diffuser rail suspension shall be supported by threaded rods 9.5 mm (3/8 in) supplied by the installer.

2.3 The threaded rods can be covered by tubes supplied by the diffuser's manufacturer and shall be the same color as the diffuser.

3. Performances

The manufacturer shall demonstrate for approval:

3.1 A diagram of the air flow, illustrating the trajectory of the air jets.

3.2 The pressure loss generated by the system and flexible diffusers supplied by the manufacturer.

4. Balancing

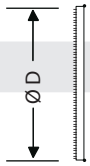
Diffuser balancing shall be done by a ventilation balancing technician, accredited as a qualified professionnal.

5. Required quality: NAD Klima model FDD

Codification

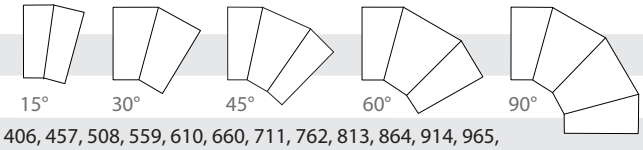
FDD	**Product**
00000 = Write the total length of the diffuser in millimeters (mm)	**Length**
203, 254, 305, 356, 406, 457, 508, 559, 610, 660, 711, 762, 813, 864, 914, 965, 1016, 1067, 1118, 1168, 1219, 1270, 1321, 1372, 1422	**Ø Diameter section**
IM = Connection with adjustable stainless steel collar IZ = Connection with black zip IV = Connection with Velcro	**Inlet section**
EZ = Connection with black zip EM = Connection with adjustable stainless steel collar EV = Connection with Velcro	**Outlet section**
01 = Standard white (S) 02 = Cream white 03 = Sand 04 = Beige 05 = Taupe 06 = Brown 07 = Terracotta 08 = Yellow 10 = Red 11 = Burgundy 14 = Standard blue (S) 15 = Marine blue (S) 17 = Emerald green 18 = Forest green 19 = Metallic grey (S) 21 = Standard grey (S) 24 = Black	**Diffuser color**
S = Single (12:00) D = Double track (3:00 and 9:00)	**Hanging system**
FDD - 00000 - 203 - IM - EM - 01 - S (S) = Standard, in stock	**Example**

CAP codification



FDD CAP	**Product**
203, 254, 305, 356, 406, 457, 508, 559, 610, 660, 711, 762, 813, 864, 914, 965, 1016, 1067, 1118, 1168, 1219, 1270, 1321, 1372, 1422	**Ø Diameter**
01 = Standard white (S) 02 = Cream white 03 = Sand 04 = Beige 05 = Taupe 06 = Brown 07 = Terracotta 08 = Yellow 10 = Red 11 = Burgundy 14 = Standard blue (S) 15 = Marine blue (S) 17 = Emerald green 18 = Forest green 19 = Metallic grey (S) 21 = Standard grey (S) 24 = Black	**Color**
FDD - CAP - 203 - 01 (S) = Standard, in stock	**Example**

Elbows codification



FDD ELB = Elbow	**Product**
15, 30, 45, 60, 90	**Angle**
203, 254, 305, 356, 406, 457, 508, 559, 610, 660, 711, 762, 813, 864, 914, 965, 1016, 1067, 1118, 1168, 1219, 1270, 1321, 1372, 1422	**Ø Diameter**
IZ = Connection with black zip IM = Connection with adjustable stainless steel collar IV = Connection with Velcro	**Inlet section**
EZ = Connection with black zip EM = Connection with adjustable stainless steel collar EV = Connection with Velcro	**Outlet section**
S = Standard (based on: r =1.5 Ø centre) A = Other (specified in annotation)	**Radius**
01 = Standard white (S) 02 = Cream white 03 = Sand 04 = Beige 05 = Taupe 06 = Brown 07 = Terracotta 08 = Yellow 10 = Red 11 = Burgundy 14 = Standard blue (S) 15 = Marine blue (S) 17 = Emerald green 18 = Forest green 19 = Metallic grey (S) 21 = Standard grey (S) 24 = Black	**Color**
FDD - ELB - 15 - 203 - IZ - EZ - S - 01 (S) = Standard, in stock	**Example**

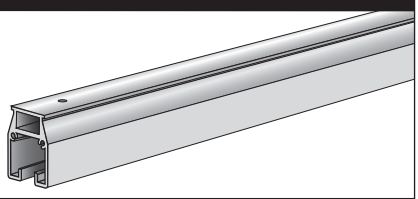
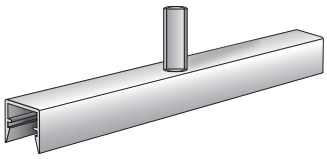
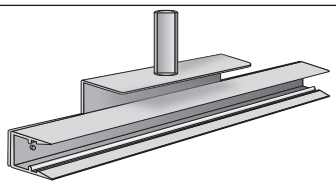
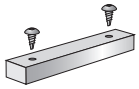
Notes: Blue = Standard

Codification

Codification of reducers

FDD	RED = Reducer	**Product**
	203, 254, 305, 356, 406, 457, 508, 559, 610, 660, 711, 762, 813, 864, 914, 965, 1016, 1067, 1118, 1168, 1219, 1270, 1321, 1372, 1422	**Ø Inlet diameter (interior)**
	203, 254, 305, 356, 406, 457, 508, 559, 610, 660, 711, 762, 813, 864, 914, 965, 1016, 1067, 1118, 1168, 1219, 1270, 1321, 1372	**Ø Outlet diameter (interior)**
	T = Flat on top C = Centered B = Flat Bottom	**Configuration**
	IZ = Connection with black zip IM = Connection with adjustable stainless steel collar IV = Connection with Velcro	**Inlet section**
	EZ = Connection with black zip EM = Connection with adjustable stainless steel collar EV = Connection with Velcro	**Outlet section**
	01 = Standard white (S) 02 = Cream 03 = Sable 04 = Beige 05 = Taupe 06 = Brown 07 = Terracotta 08 = Yellow 10 = Red 11 = Burgundy 14 = Standard blue (S) 15 = Marine blue (S) 17 = Emerald green 18 = Forest green 19 = Metallic grey (S) 21 = Standard grey (S) 24 = Black	**Color**
	(S) = standard, in stock	
FDD - RED - 305 - 203 - T - IZ - EZ - 01		**Example**

Codification of additionnal accessories for FDD flexible diffuser installation

Product code	Description	
FRA	Rail Aluminum 32 mm x 44.5 mm x 3.05 m (1 1/4 in x 1 3/4 in x 10 li. ft) * may be painted	
FPC	Slider for centered single suspension - coupling included Aluminum 24 mm x 20 mm x 203 mm (3/4 in x 15/16 in x 8 in)	
FPD	Lateral slider for double suspension - coupling included Aluminum 26 mm x 51 mm x 203 mm (1 in x 2 in x 8 in)	
FBL	Connector 12 mm x 6 mm x 83 mm (1/2 in x 1/4 in x 3 1/4 in)	
FRA		**Example**

Accessories supplied with FDD diffuser
- Rail
- Slider (single or double)
- Connectors

Notes: Blue = standard

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