



RRA / RDD
Duct diffusers



Maintenance and Installation Guide



KEEP THIS GUIDE

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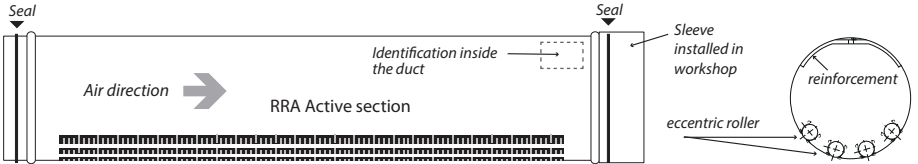
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NAD Klima Ontario inc.

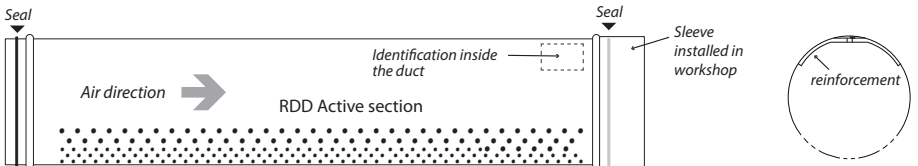
2840, Argentia Road, Unit 6, Mississauga, ON, L5N 8G4, Canada • (416) 860-1067 • ontario@nadklima.com

CONFIGURATION

The RRA diffuser is a smooth circular duct with slots mounted lengthwise. The number of slots is determined by air flow quantity and by the duct's diameter. The slots contain 100 mm long eccentric rollers or ABS nozzle rollers (black, cream or white). The eccentric rollers are provided with alphanumeric guides, which allow an airflow pattern adjustment across a 180° range (see page 9).



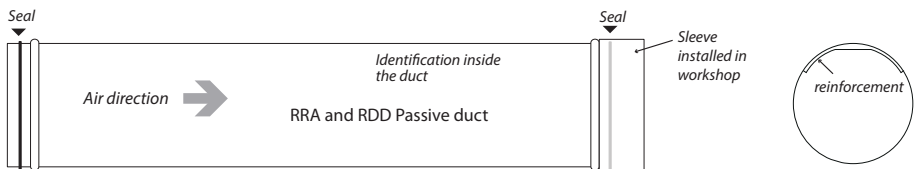
The RDD diffuser is a high induction air diffuser designed for specific ventilation needs and adapted to rooms requiring a very large air volume.



The RRA and RDD diffusers are constructed in diameters ranging from 200 mm up to 1419 mm. Metallic reinforcements are installed inside of ducts wider than 433 mm to maintain a circular integrity.

At each end, a receiving groove fitted with an integrated PVC gasket ensures a proper seal.

Passive ducts without slots or without holes are available in the same dimensions as the active duct, in order to ensure the duct network's uniformity.



Identification label description	
Piece No : ←	Piece number (ref. NAD submittal)
<div style="border: 1px solid black; padding: 5px; text-align: center; font-size: 2em; font-weight: bold;">TAG</div> ←	TAG (ref. engineer drawing)
↑ AIR DIRECTION N14-XXX ←	NAD project number
RRA-1500-1300-353-3-006-DFS-W-9003-D-5 ←	Product code
Ajustement : DFS ←	Roller adjustment
Couleur : RAL 9003 ←	Duct colour
Clé de balancement ←	Special note for manufacturing

SUSPENSION OF THE DUCT DIFFUSER

USING THREADED RODS

A) Installation of the suspension threaded rods

Calculate the distance between the ceiling and the duct installation's top.

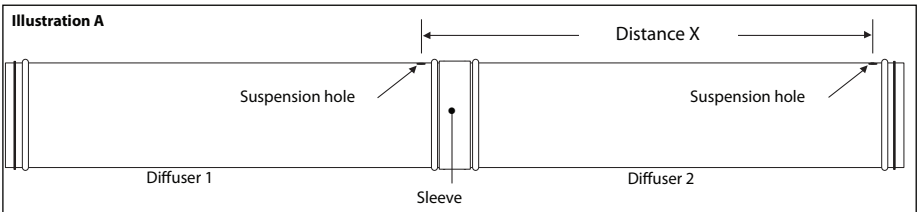
Add 76 mm (3 in). This addition will be used to adjust the duct.

To position the threaded rods, calculate the distance (X) between the suspension holes on the top of the diffuser.

To calculate the distance "X", join two diffusers with a sleeve and measure the distance between the 2 hanging holes, as shown in illustration A.

The suspension rods must be aligned with the holes intended for this purpose, located on the top of the diffusers.

Secure threaded rods to the ceiling.



B) Rod cover installation (if desired)

Calculate the distance between the ceiling and the top of the duct to determine the rod cover's length.

Cut the rod cover to the desired length.

Slide the rod cover over the threaded rod **before installing** the duct.

The rod cover will be retained by a nut.

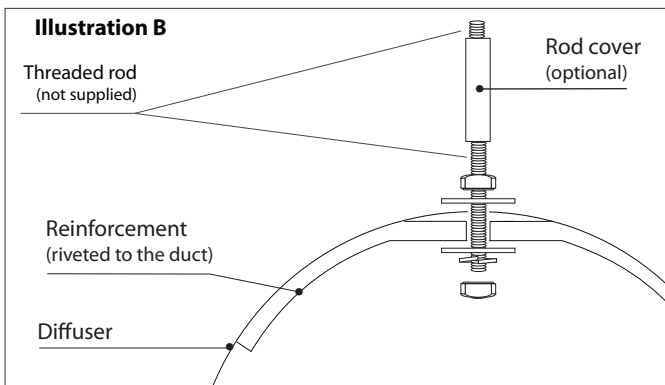
C) Diffuser installation

As shown in **illustration B**, install the diffuser by inserting a threaded rod into the hole located at the top of the diffuser. Make sure the rod goes through the diffuser as well as the bracket.

Insert the washer, the lock-washer, the second nut and adjust the duct's height.

To install the second diffuser, see page 9.

Note: It is important to install diffusers in the exact order described in the submittal.

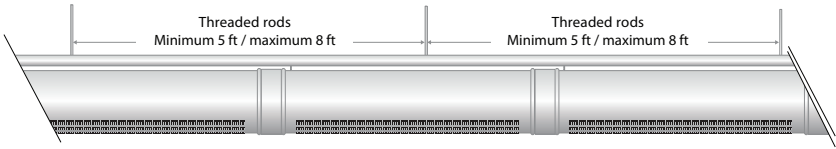


SUSPENSION OF THE DUCT DIFFUSER

Using aluminum RAIL

A) Installation of threaded rods

Secure the 9.5 mm (3/8 in) threaded rods (not supplied) to the ceiling, measure diffuser height and have 1.5 m to 2.5 m (5 ft to 8 ft) between each one.



B) Install the rod cover

Calculate the length of the threaded rod and subtract 25 mm (1 in) to determine the rod cover's length.

Cut the rod cover to the length obtained.

Slide the rod cover over the threaded rod **before installing** the rail.

The rod cover will be retained by the coupling bolt (see illustration A, page 5).

C) Install the rail

Insert the retaining screw into the rail's upper section.

Slide it inside the rail to the suspension rod's location.

Using the coupling bolt, **attach** the threaded rod to the retaining screw.

D) Install the duct diffuser

As shown in illustration A on page 5, **insert** the slider in the lower part of the rail, making sure the setscrew has been previously inserted.

Insert the first adjustment nut.

Align the suspension screw with the hole located on the diffuser's top.

Insert the suspension screw through the diffuser and the bracket.

Insert the second adjustment nut.

The coupling bolt can be used to make a final adjustment to the diffuser's height.

To install the second diffuser, see page 9.

Note: It is important to install diffusers in the exact order described in the submittal.

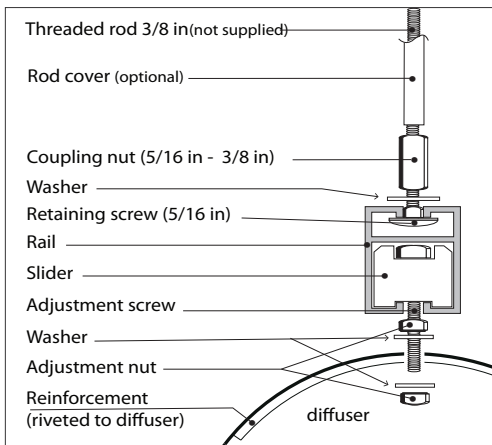
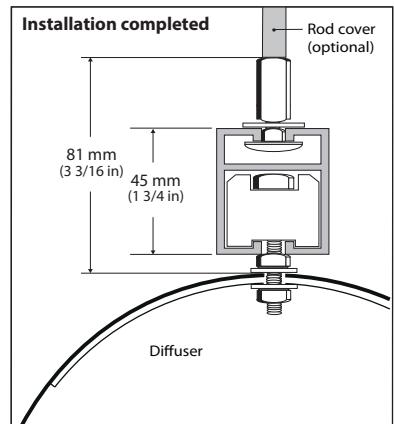


Illustration A



SUSPENSION OF THE DUCT DIFFUSER

USING CEILING RAIL

A) Rail installation (illustration A)

Secure rail to ceiling.

B) Channel nut installation (illustration B)

From inside the diffuser, **insert** the bolt with the lock washer and washer through the hole in the upper diffuser.

Outside the diffuser, **secure** the channel nut to the bolt.

Do not tighten the bolt.

C) Diffuser installation (illustrations C and D)

Turn the channel nut a quarter turn clockwise and insert it in the rail.

When in position, **tighten** the bolt to secure the diffuser.

To install the second diffuser, see page 9.

Note: It is important to install diffusers in the exact order described in the submittal.

Illustration A

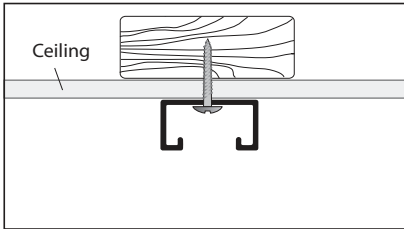


Illustration B

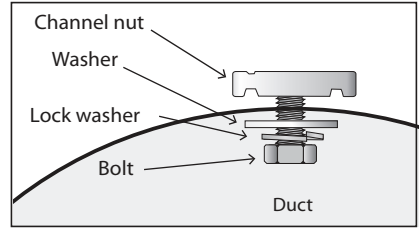


Illustration C

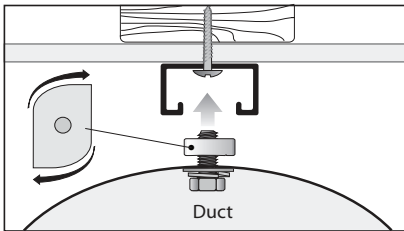
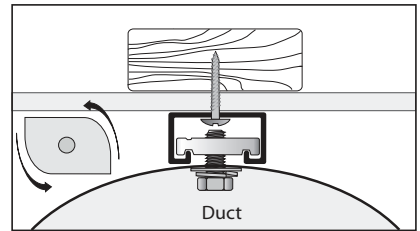
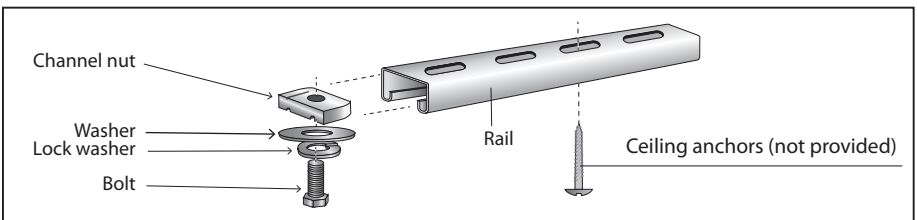


Illustration D



Material



SUSPENSION OF A DUCT DIFFUSER

USING STEEL RAIL - SUSPENDED BY A THREADED ROD

A) Installation of rail (illustration A)

- **Calculate** the distance between the ceiling and the top of the duct.
- **Secure** the 9.5 mm (3/8 in) threaded rods (not supplied) to the ceiling, measure diffuser height and have 1.5 m to 2.5 m (5 ft to 8 ft) between each one.

B) Install the rod cover

- **Calculate** the length of the threaded rod and subtract 25 mm (1 in) to determine the rod cover's length. **Cut** the rod cover to the length obtained.
- **Slide** the rod cover over the threaded rod **before installing** the rail. The rod cover will be retained by the flange lock nut (see illustration A).

C) Channel nut installation (illustration B)

From inside the diffuser, **insert** the bolt with the lock washer and washer through the suspension hole in the upper diffuser.

Outside the diffuser, **secure** the channel nut to the bolt.

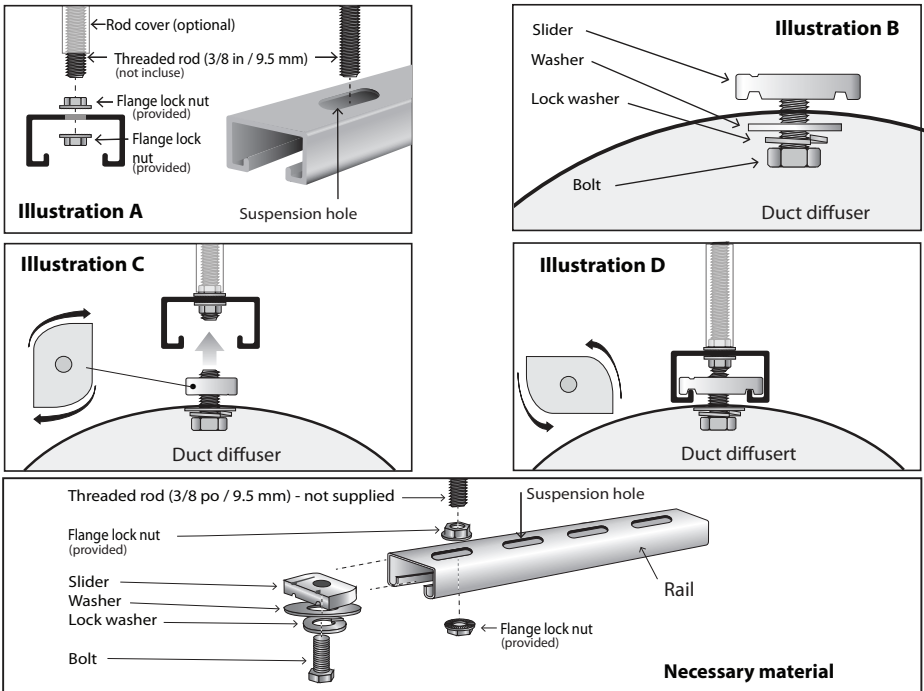
Do not tighten the bolt.

C) Diffuser installation (illustrations C and D)

- **Turn** the channel nut a quarter turn clockwise and insert it in the rail. When in position, **tighten** the bolt to secure the diffuser.

To install the second diffuser, see page 9.

Note: It is important to install diffusers in the exact order described in the submittal.

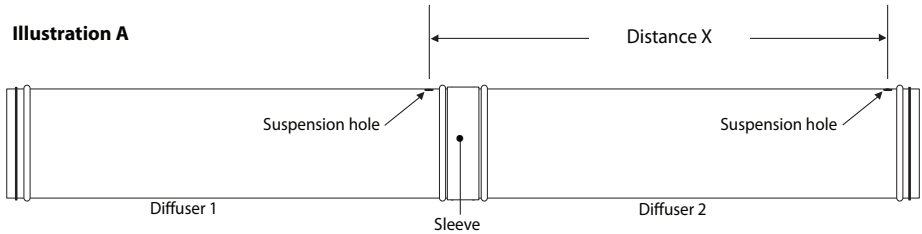


SUSPENSION OF THE DUCT DIFFUSER

USING METAL CABLE

A) Metal cable installation

Secure anchors to the ceiling, taking care to measure the distance between the suspension holes located at the top of the diffuser.



B) Hanging cable installation

As shown on illustration B, **install** the anchor to the diffuser using the hole on diffuser's top. **Fix** the anchor to the diffuser with the suspension bolt. **Pass** the metal cable through the cross-cable gripper.

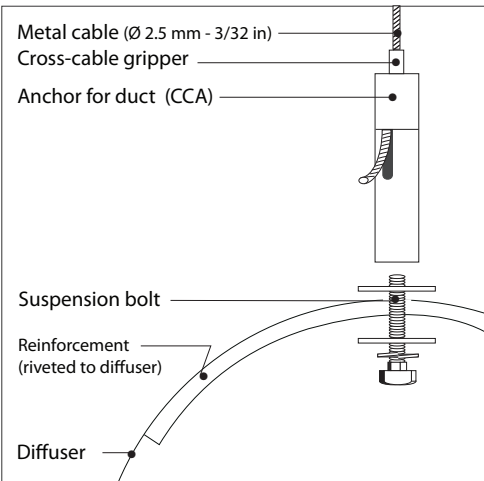
C) Adjusting diffuser height

Adjust the diffuser's height with the cable and the cross-cable gripper.
Cut off the excess wire.

To install the second diffuser, see page 9.

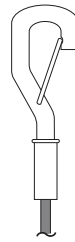
Note: It is important to install diffusers in the exact order described in the submittal.

Illustration B

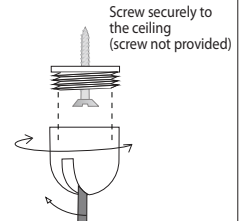


Anchor models

Anchors for ceiling

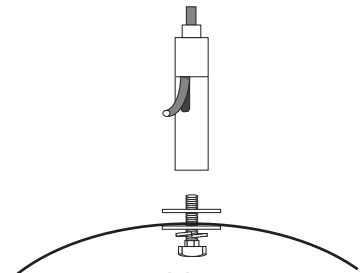


CPA



CCP

Anchor for duct



CCA

SUSPENSION OF THE DUCT DIFFUSER

WITH ADJUSTABLE WALL BRACKET

The adjustable wall bracket is composed of 2 parts; the wall bracket and the adjustable support.

A) Determining the wall bracket's location

Calculate the exact height of the duct and **mark** its center on the wall (see illustration A).

B) Wall bracket's installation

Center the wall bracket (see illustration A) and **anchor** securely to the wall with the appropriate hardware (not supplied).

C) Adjustable support installation

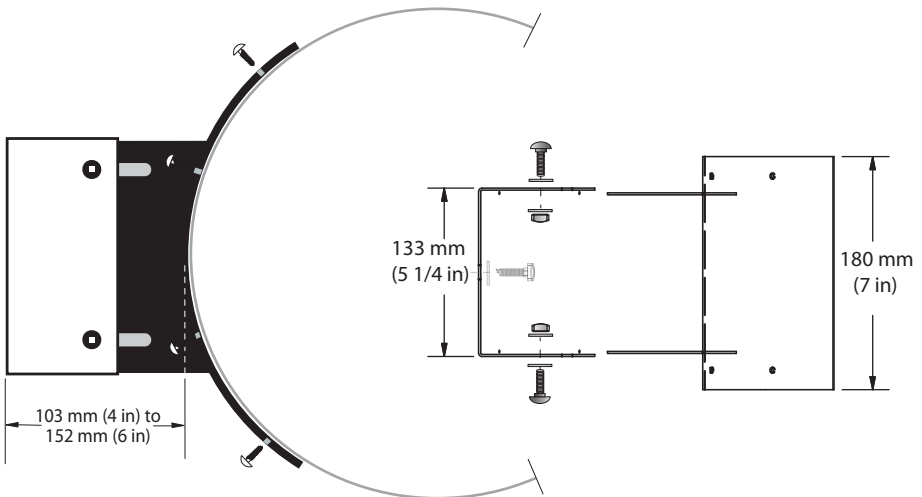
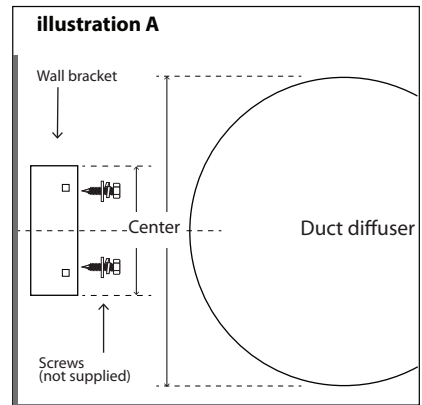
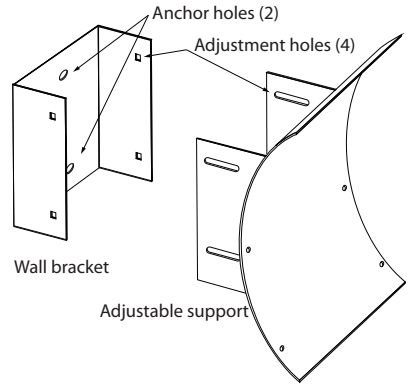
Slide the adjustable support over the wall bracket and secure with supplied hardware.

DO NOT OVERTIGHTEN THE HARDWARE.

D) Place the duct in position on the adjustable support and **secure** with the screws supplied, through the support's predrilled holes.

E) Adjust the distance by sliding the support forwards or backwards along the slots. 50 mm (2 in) of leeway is possible.

When in desired position, **tighten** the hardware to secure the adjustable support.



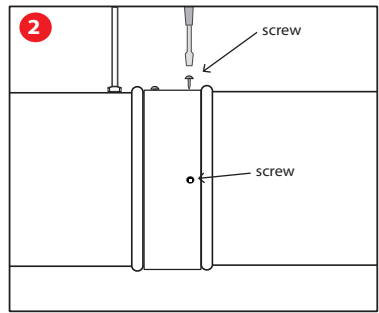
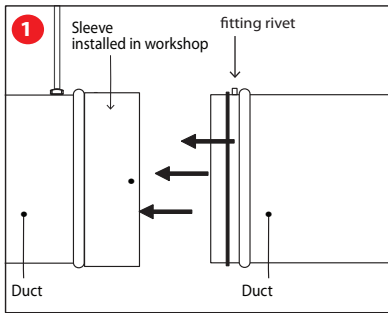
SUSPENSION OF THE DUCT DIFFUSER

CONNECTING TWO DIFFUSERS

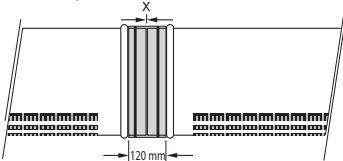
The joining of two (2) diffusers is done with a connecting sleeve, whose diameter is slightly larger than the sleeve. This way, all the diffusers are aligned.

- 1 Slide** the duct in the connecting sleeve until the joint seals up against the retaining bulge. Align the fitting rivet into the notch of the sleeve.
- 2 Insert** a screw in the hole situated on the top, to secure the sleeve to the diffuser.
- 3 Connect** the second diffuser by inserting it in the sleeve and secure it with a screw.

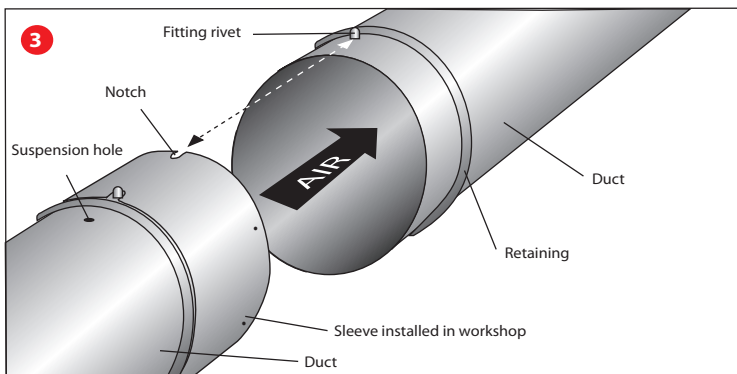
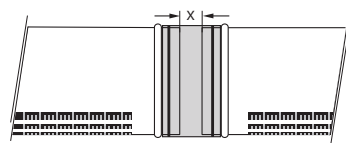
Repeat for each section.



Standard sleeve - 5 in (120 mm)
Diffusers are jointed. $X = 0$



Special sleeve - Spacing between diffusers
 $X =$ from 1/32 in (1 mm) to 54 in (1380 mm)

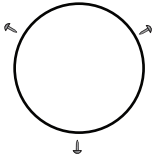


SLEEVE INSTALLATION

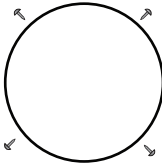
Fixing holes

The connection of two ducts is made using a sleeve, always installed in the workshop. Holes are pre-drilled in the sleeves, indicating the number of screws to be installed.

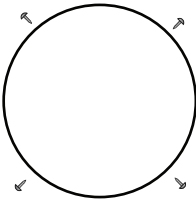
Regular sleeve



< 432 mm (17 in)
Wall: 22 gauge
Number of screws per sleeve:
3 installed in workshop
3 to install
Key: H-102

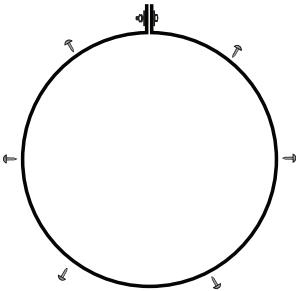


457 mm (18 in) to 559 mm (22 in)
Wall: 20 gauge
Number of screws per sleeve:
4 installed in workshop
4 to install
Key: H-102



584 mm (23 in) to 762 mm (30 in)
Wall: 20 gauge
Number of screws per sleeve:
4 installed in workshop
4 to install
Key: E-Lock

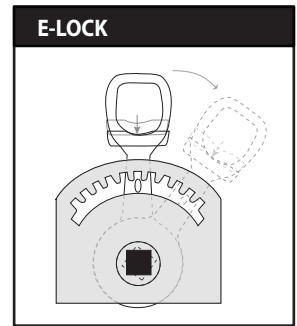
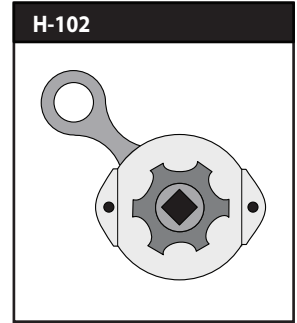
Opened sleeve



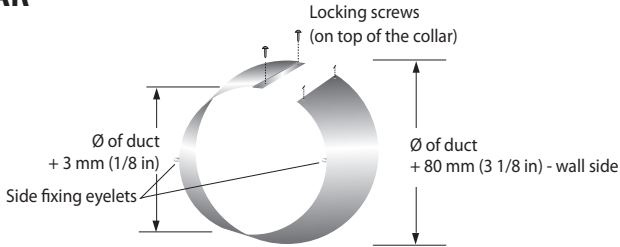
787 mm (31 in) and up
Wall: 20 gauge
Number of screws per sleeve:
6 installed in workshop
6 to install
Key: E-Lock

Adjustment keys

When installed in the workshop, adjustment keys are in closed position.



THE COLLAR



INSTALLATION

A) Make sure that the supply duct exceeds the wall (2 3/8 in) (illustration **A**).

This step is important and size, 60 mm (2 3/8 in), must be respected.

The supply duct's diameter should be the same length plus 3 mm than the RRA diffuser.

B) RRA diffuser installation (illustration **B**)

Slowly slide the NAD diffuser inside the supply duct to retaining bulge.

Make sure the seal gasket is inside the supply duct.

Secure the diffuser with the locking screws provided for this purpose (see **B-1**).

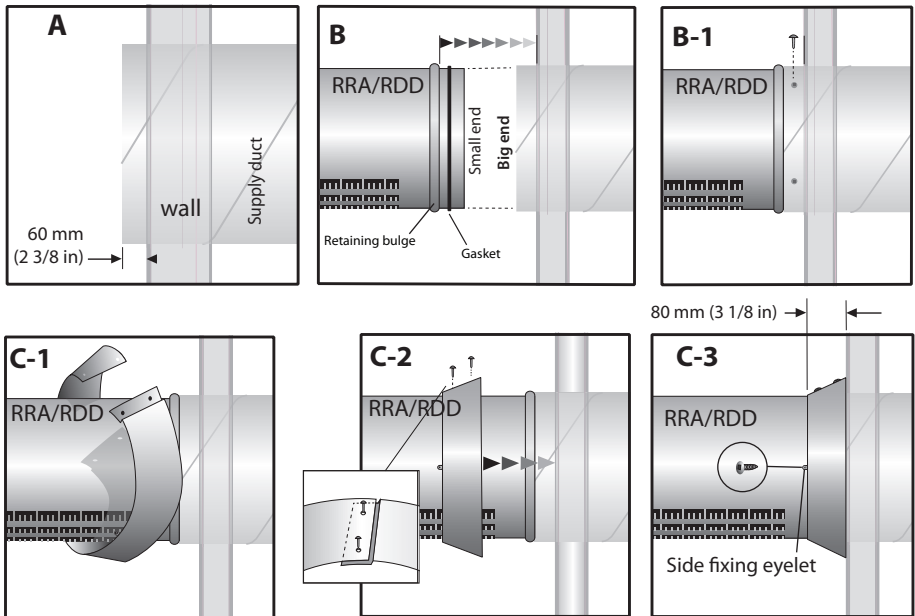
C) Collar installation (illustrations **C**)

Fully open the collar and wrap it around the RRA duct (see **C-1**).

Close the collar with the two locking screws provided for this purpose (see **C-2**).

The locking screws will be on the duct's top.

Slowly push the collar to the wall and fix it with two screws in the two side fixing eyelets (see **C-3**).



CONTROLLING RRA AIR FLOW DIRECTION

Due to the various depression zones created by the eccentric roller, airflow can be adjusted on a 180° range.

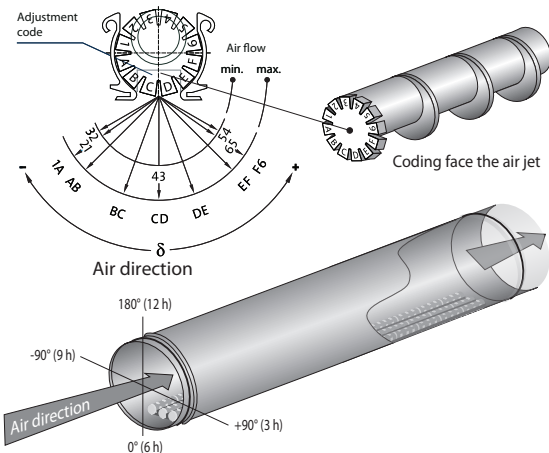
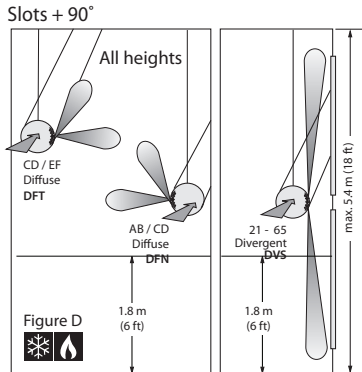
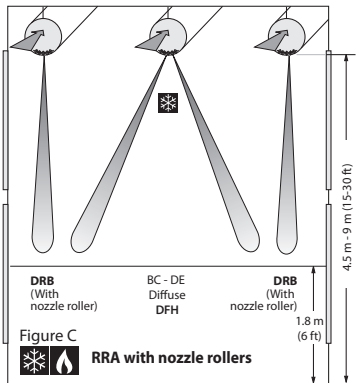
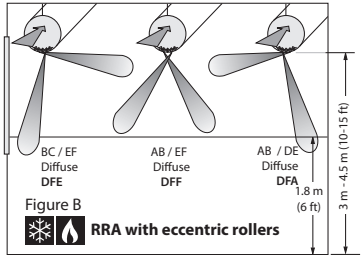
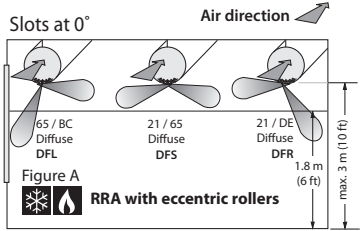
As a result, airflow combinations are virtually infinite. Each project benefits from personalized adjustments made by the manufacturer in the plant. Cylinder standard setting is on diffused mode, in alternating positions 21 and 65.

This setting provides high induction that can be used on heating and cooling modes, when high air changeover figures are needed. Figures A and B show the most frequently used settings.

On the other hand, the divergent mode allows air blast direction with more precision. This mode enables the production of a longer thrust of airflow. Specific zones, usually difficult to reach, can in this way benefit from personalized settings.

Figures C and D illustrate the eccentric roller's position and the corresponding air blast direction and discharge. It must be noted that to maximize air projection, multiple air blasts can be oriented in the same direction, optimizing zone service even in heating mode.

Examples

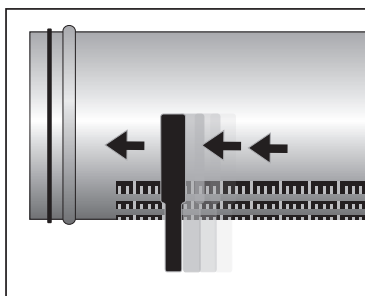


MAINTENANCE

The NAD Klima RRA diffuser requires no special maintenance other than periodic cleaning.

We recommend cleaning the diffuser with a multi-filament brush or microfiber duster that you will pass softly on the diffuser. The thermo-lacquered finish allows for easy cleaning of the diffuser as dust does not stick to it.

When cleaning, gently move the brush or duster in the same direction as the rollers so as not to change their adjustment*.



IMPORTANT

* RE-ADJUSTMENT OF RRA ECCENTRIC ROLLERS

If, during the cleaning of the RRA diffuser an airflow disalignment occurs, it is important to realign rollers in their original position to maintain full effectiveness of your diffuser.

Only a technician specializing in air balancing is qualified to restore roller adjustment to its initial positioning.

To do this, he must have access to the initial data and engineering requirements, then follow the instructions provided in this manual on page 11.

Quality
NAD Klima®

Manufactured in Sherbrooke, Quebec, (Canada)
and distributed all across North America, our products raise the bar in terms of standards of quality, efficiency and energy savings.

All NAD Klima products are the pride of an inventive, innovative
and devoted team.

Our goal is not only to supply diffusers, but to create outstanding results.

We are NAD Klima.

