

N-Slot Series Diffusers

Plenum Slot Diffusers

OVERVIEW

The N series slot plenum diffuser is an excellent choice for perimeter air distribution. Because of the high induction ratio, performance is exceptional, maximizing comfort in perimeter zones.

Tests were run in the Titus Cold Wall Laboratory to re-examine the effects of cold exterior surfaces on local temperatures in a room. These tests showed that features such as furr downs, sills and recessed windows could prevent a diffuser from projecting warm air into direct contact with a window. Cold drafts generated by the glass surface continued unabated. Building features call for adjustability to overcome this problem, we designed the N series slot diffuser with an optional center down-blow section that can vary not only the volume of air but also the direction of airflow through a broad range. This allows

the diffuser to adapt to the architecture of the window and effectively blanket the glass with warm air.

Since window convection currents are caused by the cooling of the room air against the glass, it follows that when this air is replaced with warm air from the diffuser, the downward convection is stopped. A major source of discomfort is eliminated.

The N series slot design also has aerodynamically shaped horizontal discharge slots for maximum velocity and induction, with minimum noise and pressure drop. The high rate of induction means lower room temperature gradients and improved comfort.

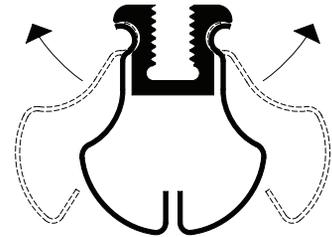
Also, we have found many projects require low-height diffusers to fit above the ceiling. The N series slot has an overall height of only 7 inches, in all sizes to meet this application requirement.



N-R Diffuser, Inlet Side

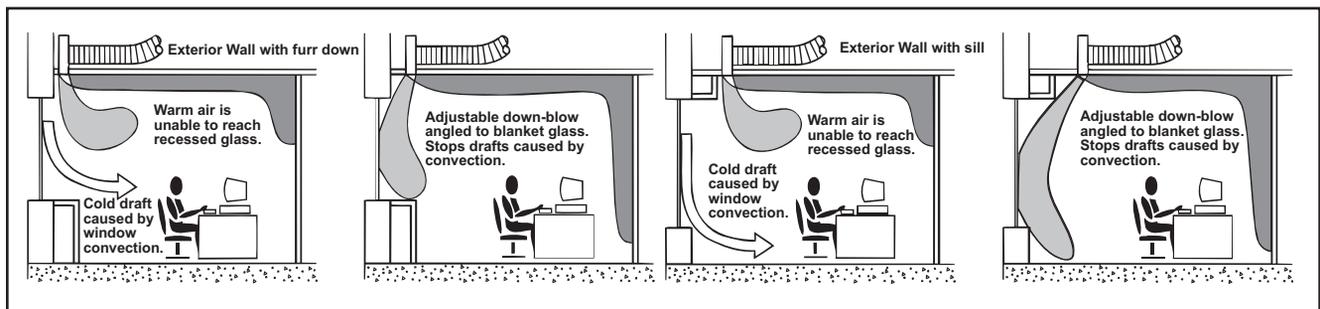
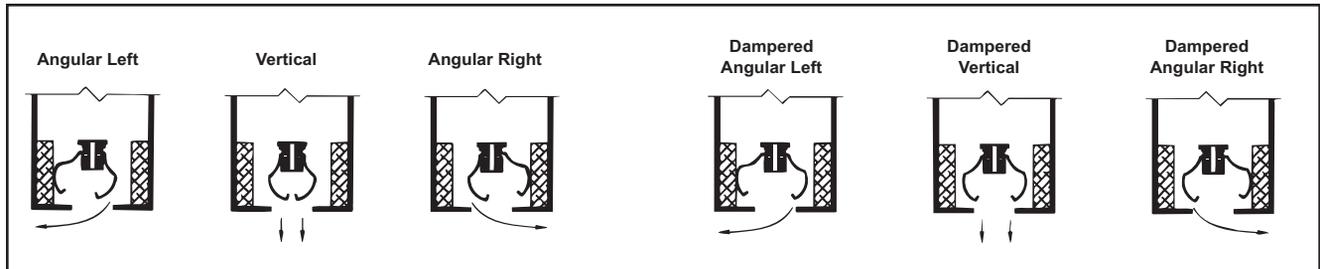


N-R Diffuser, Return Side



Adjustability is the key

ADJUSTABLE DOWN-BLOW SECTION BLANKETS, WALLS AND WINDOWS



N-SLOT SERIES

CONVENTIONAL SLOT DIFFUSER. Air that should be blanketing the glass is unable to do so because the window is recessed. The resulting cold draft causes serious discomfort. The condition is aggravated by the high sill, which projects the draft at neck height.

TITUS N-SLOT DIFFUSER. Can be adjusted to discharge at an angle from the slot in the center section of the diffuser—effectively blanketing the window with warm air. Downward convection is stopped, the draft is eliminated. Volume is adjusted for required vertical throw.

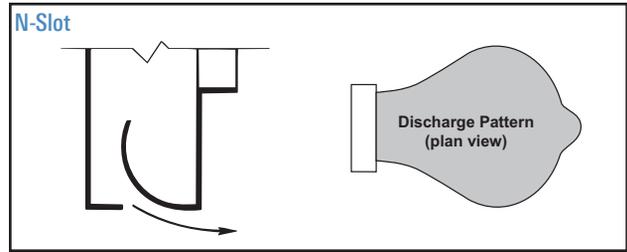
CONVENTIONAL SLOT DIFFUSER. The difficulty in blanketing the recessed glass is compounded by the furr down over the window. Although there is no sill as in the diagram above, the resulting cold draft causes serious discomfort at ankle height.

TITUS N-SLOT DIFFUSER. With the diffuser placed a short distance away from the furr down, the diffuser discharge can be angled to blanket the window with warm air. Downward convection is stopped, the draft is eliminated. Volume is adjusted for required vertical throw.

FOUR DIFFERENT N-SLOT SERIES AND THEIR APPLICATIONS

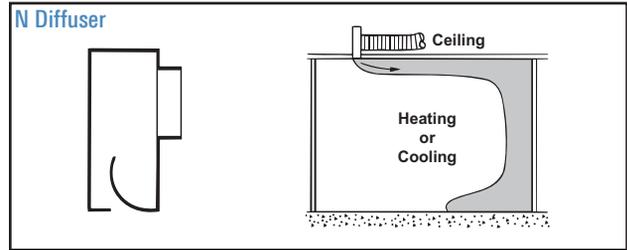
N-SLOT

Aerodynamic blades plus the carefully engineered matching of slot and inlet plenum results in an air discharge pattern as diagrammed. With the wide spread and the sustained throw at the outer edges, the air jet adheres to the ceiling over the entire variable volume range. The high rate of induction of room air minimizes temperature gradients and maximizes comfort.



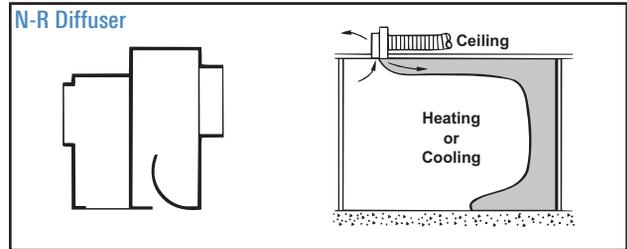
N SERIES

For cooling or heating. The horizontal discharge blankets the ceiling for effective air distribution throughout the room. The N Series is used primarily for cooling or for both heating and cooling in exterior zones, especially in areas with relatively low heating demand.



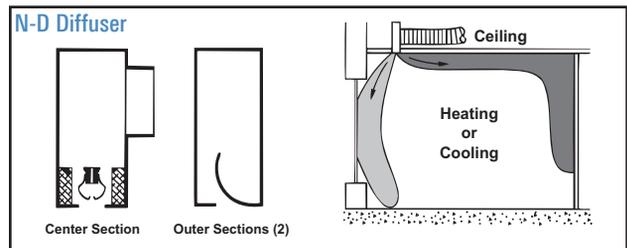
N-R SERIES

Includes a return section. For cooling or heating. The horizontal discharge blankets the ceiling for effective air distribution throughout the room. The return section offers an efficient and cost-effective method of returning air to the ceiling plenum. With the high induction supply air directed away from the return slot, the amount of "short circuiting" is insignificant.



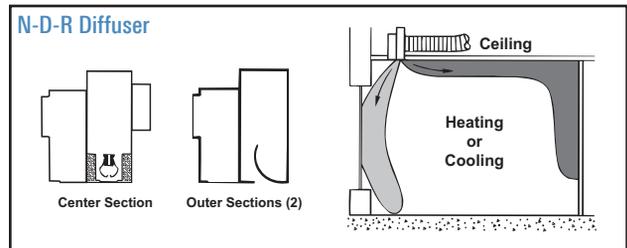
N-D SERIES

Delivers air in two separate discharge patterns. For heating or cooling. The horizontal discharge (two outer sections) blankets the ceiling for effective air distribution throughout the room. The down-blow (center section) adjusts to any angle from vertical to horizontal to project a uniform sheet of air over a window or exterior wall. Especially useful where windows are recessed outward in deep bays.



N-D-R SERIES

Also includes a return section. Delivers air in two separate discharge patterns, as in the N-D Series above. For heating or cooling. Especially useful where windows are recessed outward in deep bays. The return section offers an efficient and cost-effective method of returning air to the ceiling plenum. With the high induction supply air directed away from the return slot, the amount of "short circuiting" is insignificant.



OPTIONAL RETURN SAVES INSTALLATION COST

TITUS SERIES N-R AND N-D-R

The series N-R and N-D-R diffusers have a built-in return air section. Using these diffusers allow for important cost savings during installation as there are fewer equipment pieces to mount in the ceiling. The single ceiling penetration for both the supply and return allows for an improved overall appearance.

In spite of the closeness of the supply and return to each other, there is negligible short circuiting. The reason is the jet of supply air leaving the diffuser is highly directional and is moving at a velocity many times the velocity of the nondirectional return air.

