

5000 | Laminar Flow Diffuser

Vertical Flow Acceleration of Cold Air Masses

Laboratory tests of the 5000 series perforated distribution panels provide the designer of clean rooms with some valuable information.

Due to the low percentage of perforated area in comparison with the overall area of the laminar panel, there is a tendency for air to be discharged vertically downward from the diffuser and pull inward or coalesce into a smaller, tighter air pattern. At some distance below the diffuser, the air pattern coverage is a little less than the dimensions of the diffuser. The effect is increased when cold air is discharged.

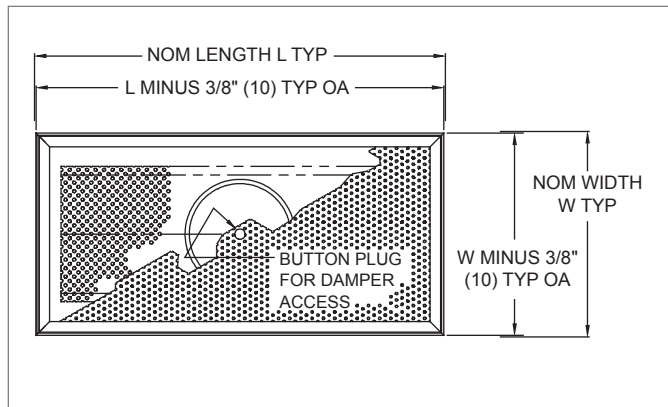
The buoyancy of air is effected by temperature. When the entering air temperature is decreased, this increases the effect of cold air negative buoyancy. The surrounding warm air increases the coalescing effect, which results in an

increased velocity of the cold airstream as the cold air mass moves downward. The velocity of cold air from a single panel of 15 ft² or less reaches a minimum area of coverage and a maximum velocity at a distance of approximately 4' to 8' below the diffuser, depending on diffuser size and amount of cooling of the air stream. Beyond this distance, velocities begin to reduce and air patterns begin to spread.

When multiple 5000 panels are grouped together, effectively producing a larger square footage of diffusing area, the resultant point of minimum area coverage and maximum velocity is at a much greater distance from the ceiling than a single diffuser. The airstream may continue to accelerate and coalesce until it hits the floor of the room, producing higher velocities at a distance of 6' below the diffuser area. This increased velocity effect is shown in the performance data.

5000 Dimensional Information

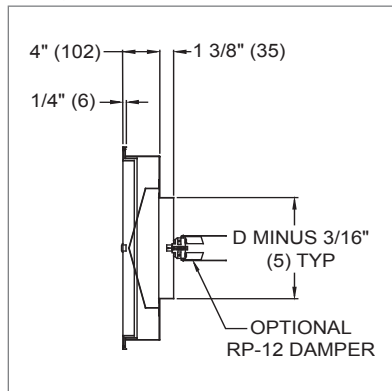
5000, FACE VIEW



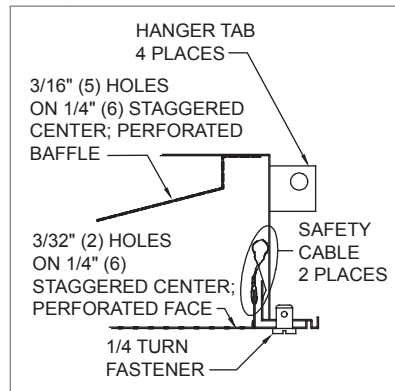
5000, AVAILABLE SIZES

Nominal Unit Size		Nominal Inlet Size	
W	L	D	Quantity
12" (305)	48" (1219)	6" (152) or 8" (203)	1
	60" (1524)		1
	72" (1828)		2
24" (610)	24" (610)	6" (152), 8" (203), 10" (254), or 12" (305)	1
	36" (914)		1
	48" (1219)	8" (203), 10" (254), or 12" (305)	1
	60" (1524)		1
	72" (1828)		2
36" (914)	48" (1219)	8" (203), 10" (254), or 12" (305)	1
	60" (1524)		2
	72" (1828)		2

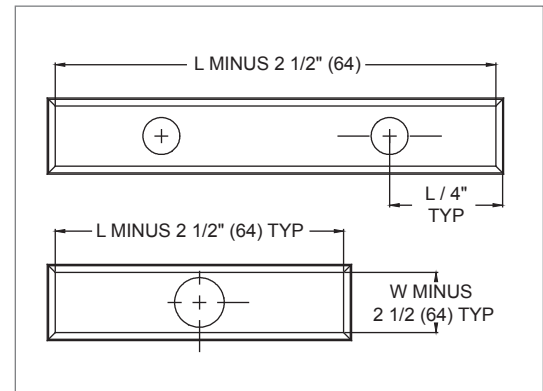
5000, CROSS SECTION



5000, CONSTRUCTION DETAIL



5000, INLET LOCATIONS



NOTE: Dimensions in parentheses are mm.