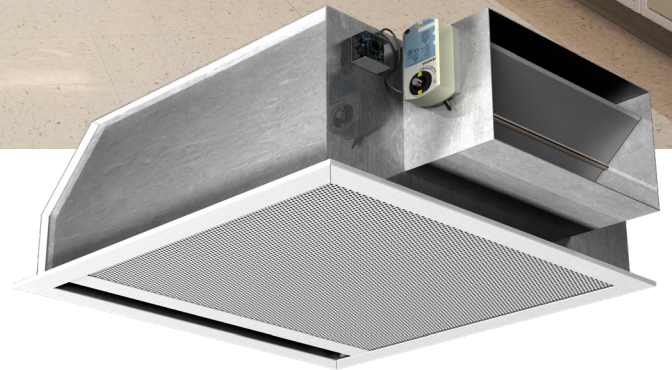


DF1L-HC

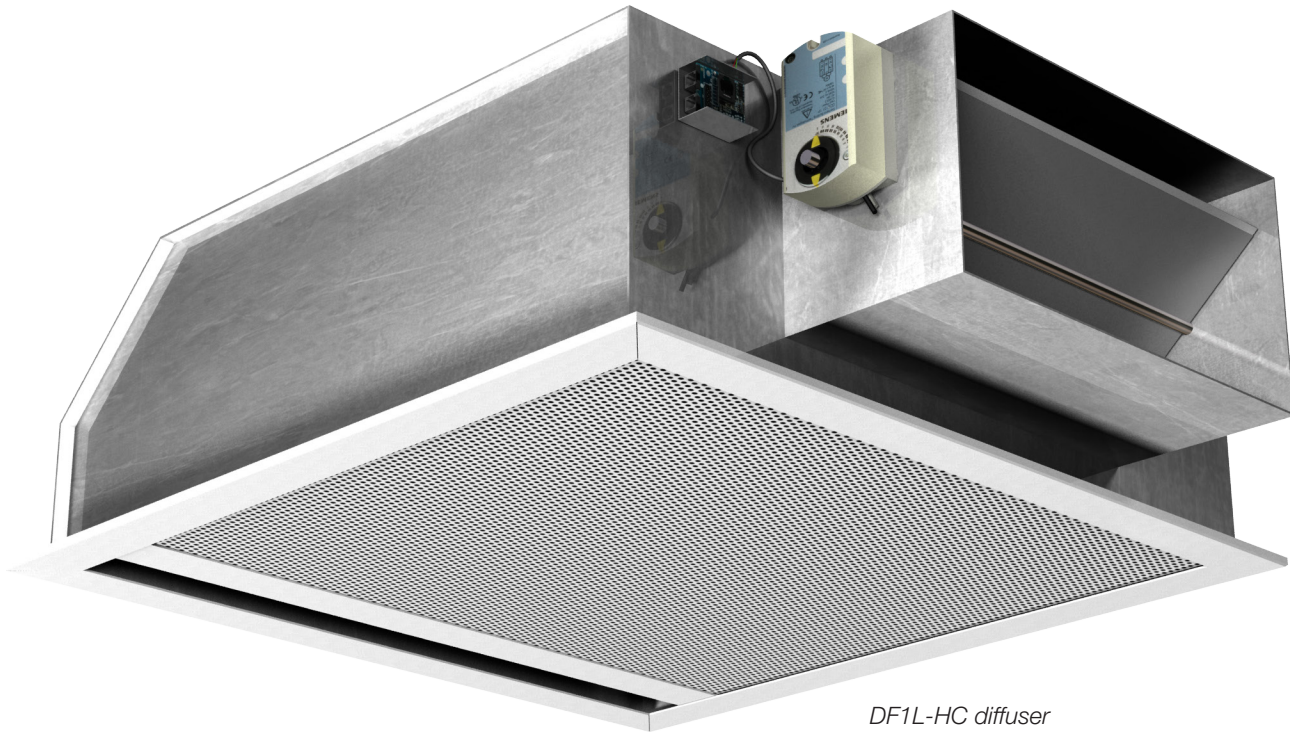
HEAT/COOL CEILING DISPLACEMENT DIFFUSER



DF1L-HC

Heat/Cool Ceiling Displacement Diffuser

The Heat/Cool Ceiling Displacement Diffuser (DF1L-HC) is a ceiling mounted diffuser with a heat/cool change over that supplies low velocity discharge air in cooling through the perforated face and high velocity warmer air through a 1 in. custom flow integrated slot diffuser. The DF1L-HC is designed to be installed in the standard T-bar ceiling making it ideal for spaces with minimal floor or wall space, transient areas (hallways and corridors) or along the perimeter.



DF1L-HC diffuser

CONSTRUCTION

+ Material

- Frame and perforated face panel – Steel
- Equalization baffle – Aluminum

+ Options

- Ships with protective film on face and inlet
- Field-cut inlet

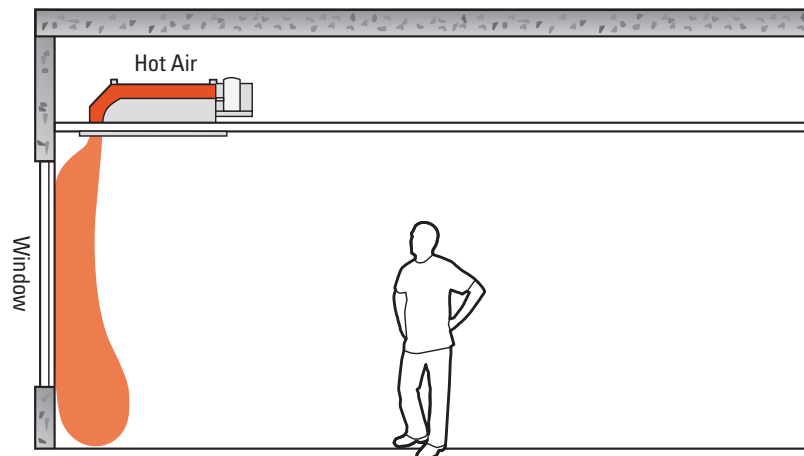
DF1L-HC

Heat/Cool Ceiling Displacement Diffuser

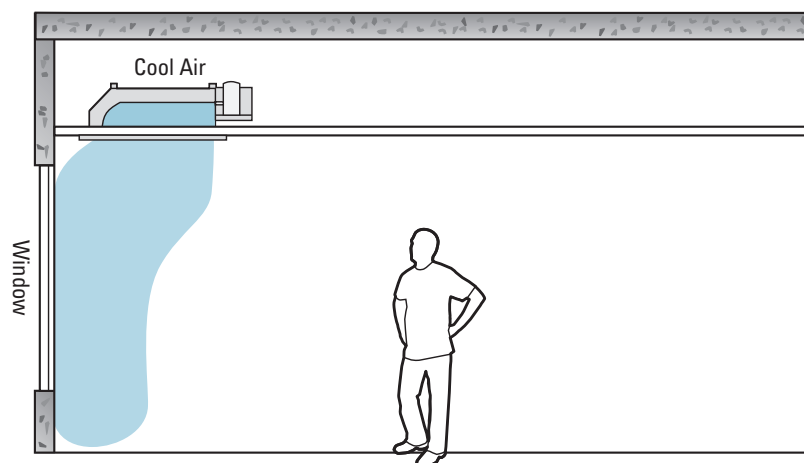
ACTUATOR OPTIONS

Electric Actuator (EA): A 24VAC actuator is provided on the DF1L-HC to operate a damper in the neck of the diffuser. In cooling mode this dual-position damper will open a cooling inlet and direct cool air through the larger perforated face; in heating mode it will direct air through the heating inlet to the slot diffuser. Discharging warm air through the slot diffuser will increase velocity and increase the effectiveness of the warm air in the room. The actuator must be provided with 24V from the building controls on the clockwise or counter clockwise terminal when the changeover is desired. This can be triggered by a duct temperature sensor, the zone temperature sensor, or the building control system.

Thermal Actuator (TA): An internal thermal actuator mechanism senses supply air temperature and adjusts the air pattern to suit heating or cooling applications. Supply air temperatures of less than 69°F (21° C) will result in the air being directed through the larger perforated face, while supply air temperatures greater than 81°F (27°C) will result in a high velocity discharge through the slot diffuser suitable for heating applications. Changeover time between full cooling and heating modes is approximately 10 minutes.



DF1L-HC air pattern heating mode

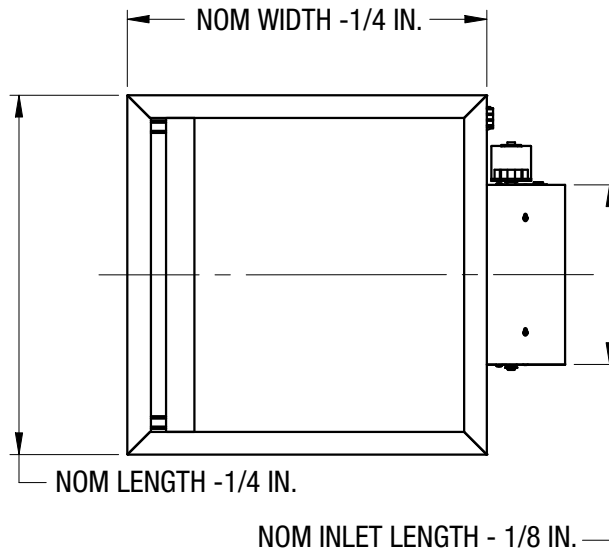


DF1L-HC air pattern cooling mode

DF1L-HC

Heat/Cool Ceiling Displacement Diffuser

DIMENSIONAL DATA



Available Sizes (in.)	
Nominal L x W	Nominal Inlet L x W
24 x 24	12 x 6
48 x 24	24 x 6

DF1L-HC

Heat/Cool Ceiling Displacement Diffuser

PERFORMANCE DATA

Cooling Displacement Pattern

Unit Size W x H [in]	Face Velocity [fpm]	Air Flow [cfm]	Total Pressure [in. w.g.]	Static Pressure [in. w.g.]	Noise Criteria [NC]	Proximity to Outlet [ft]		Adjacent Zone	
						DR 20%		DT = 5°F	DT = 10°F
						ΔT = 5 °F	ΔT = 10 °F		
24 x 24	20	51	-	-	-	-	-	-	1
	30	77	0.02	0.02	-	-	1	-	2
	40	102	0.04	0.04	-	-	1	-	2
	50	128	0.06	0.06	-	-	2	-	3
48 x 24	20	110	-	-	-	-	1	-	2
	30	165	0.02	0.02	-	-	2	1	3
	40	221	0.04	0.03	-	-	2	1	4
	50	276	0.06	0.05	17	1	3	2	4

Heating Vertical Pattern

Unit Size W x H [in]	Neck Velocity, fpm	50	100	150	200	250	300
	Velocity Pressure, in. w.g.	0	0.001	0.001	0.002	0.004	0.006
24 x 24	Total Pressure, in. w.g.	0.001	0.03	0.07	0.13	0.2	0.29
	Flow Rate, cfm	27	54	81	108	136	163
	NC	-	-	18	26	32	37
	Throw 150, 100, 50	0-1-4	2-4-9	4-7-11	6-9-13	8-10-14	9-11-16
24 x 48	Total Pressure, in. w.g.	0.01	0.03	0.06	0.11	0.17	0.25
	Flow Rate, cfm	54	108	162	217	271	325
	NC	-	-	22	30	36	41
	Throw 150, 100, 50	1-1-2	2-2-5	2-4-7	3-5-9	4-6-10	5-7-10

Heating Horizontal Pattern

Unit Size W x H [in]	Neck Velocity, fpm	50	100	150	200	250	300
	Velocity Pressure, in. w.g.	0	0.001	0.001	0.002	0.004	0.006
24 x 24	Total Pressure, in. w.g.	0.001	0.03	0.07	0.13	0.2	0.29
	Flow Rate, cfm	27	54	81	108	136	163
	NC	-	-	18	26	32	37
	Throw 150, 100, 50	0-0-1	0-1-4	1-3-5	2-4-7	3-4-9	4-5-11
24 x 48	Total Pressure, in. w.g.	0.01	0.02	0.05	0.09	0.14	0.21
	Flow Rate, cfm	54	108	162	217	271	325
	NC	-	-	22	30	36	41
	Throw 150, 100, 50	0-1-4	2-4-12	4-9-18	8-12-21	10-15-23	12-18-25

Performance Notes:

- Sound and pressure drop tested in accordance with ASHRAE Standard 70-2006 "Method of Testing for Rating the Performance of Air Outlets and Inlets."
- Air flow is in cubic feet per minute, cfm.
- Pressure is in inches of water, in. w.g.
- The NC values, sound pressure level, are based on a room absorption of 10 dB, re 10⁻¹² watts and one diffuser.
- Blanks "-" indicate that the DR is below the specified value at all distances from the diffuser face.
- ΔT is the difference between the room air temperature 3 ½ ft above the floor and the temperature of the supply air.
- Proximity to outlet is the minimum distance from an outlet to the occupant in order to achieve the listed DR value.
- DR is the predicted percentage of people dissatisfied (PPD) due to draft. A value of less than 20 meets the requirements of ASHRAE Standard 55-2004, Thermal Environmental Conditions for Human Occupancy.
- Throw values are given for terminal velocities of 150, 100, 50 fpm.
- Throw data is based on supply air and room air at iso-thermal conditions.
- The Adjacent zone describes the distance from the face of the diffuser and measured 1 in. from the floor, at which the supply air velocity is 50 fpm.



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