

The Model DC Series Radial Pattern Diffuser with Filter has been designed to provide low aspiration and high ventilation rates especially for clean room applications such as research laboratories, animal labs, food processing, hospital rooms and computer rooms. The unique design of solid baffles in an intrusive perforated face can handle large volumes of air with low initial face velocities. They are designed to accommodate a Gel Seal HEPA or ULPA filter. The filters can be easily removed and replaced from the face of the unit. These high quality filters incorporate a separatorless 2" (51) deep media, integral test port and an anodized aluminum gel seal frame.

The DC model introduces air in a semi-cylindrical 180 degree radial flow pattern, flushing a room with large volumes of clean conditioned air, minimizing entrainment and hence mixing with contaminated air, whilst still allowing low room air velocities. The DC model introduces air in a 90 degree radial flow pattern for perimeter applications.

FEATURES:

- Unique curved face design is pleasing to the eye. No unsightly sharp angles.
- Engineered design and performance are the result of extensive laboratory design and testing. Standard DG model has a true 180° radial air pattern. Model DG has a 90° radial pattern for perimeter applications.
- The face of the diffuser is attached to the plenum with two stainless steel hinges. The opposite side is secured with 1/4 turn fasteners.
- The diffuser face simply hinges down for easy access to the interior for cleaning and sanitation.
- Type 304 stainless steel perforated face has 3/32" (2.4) dia. holes on 60 degree 1/4" (6) staggered centers (13% free area).
- Clear anodized extruded aluminum filter frame with a test port for damper adjustment. filter pressure drop measurement or to perform leakage (scan) tests.
- Filters are packaged independently from the diffuser for final installation in the field (by others).
- Round inlets for simple duct connection.
- Standard unit designed for both lay-in T-bar ceiling systems and surface mount applications.
- Integral earthquake hanger tabs are standard.

Options:

- 316 Stainless Steel construction.
- HE HEPA Filter (99.99% on 0.3 µm).
- UL ULPA Filter (99.9995% on 0.12 µm).
- AW Appliance White finish.

Material: 304 stainless steel face, backpan and baffles.

Finish: #3 satin polished finish is standard. Other finishes are available.

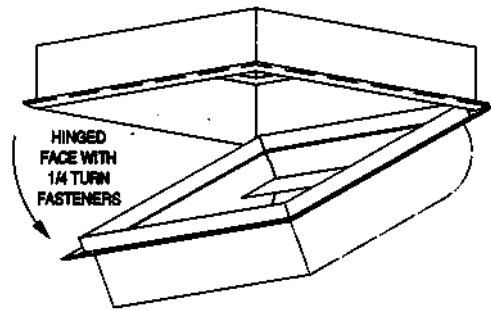
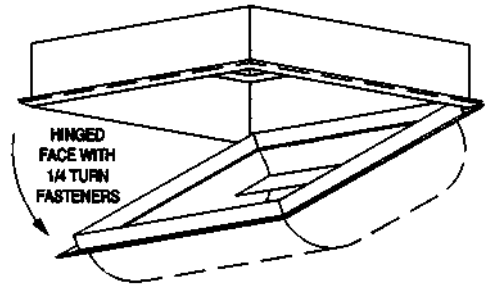
Application

The Carnes DC Series Drop Face Radial Flow Diffusers have been designed to provide low aspiration and high ventilation rates, especially for clean room applications such as research laboratories, animal labs, food processing, hospital rooms and computer rooms. The unique design of solid baffles in an intrusive perforated face can handle large volumes of air with low initial face velocities and offers a very pleasing, attractive appearance. These diffusers are designed to accommodate a Gel Seal HEPA or ULPA filter. The filters can be easily removed and replaced from the face of the unit. These high quality filters incorporate a separatorless 2" (51) deep media, integral test port and an anodized aluminum gel seal frame.

The two way blow pattern introduces air in a semi-cylindrical 180° radial flow pattern, flushing a room with large volumes of clean conditioned air, minimizing entrainment and contaminated air, while still allowing low room air velocities. The one way blow pattern introduces air in a 90° radial flow pattern for perimeter applications.

Standard Features

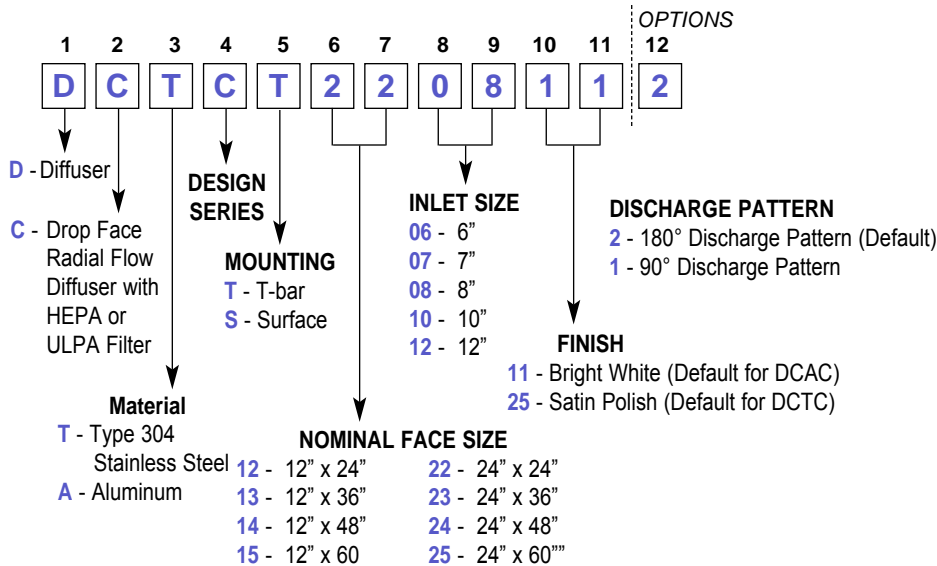
- Available in type 304 stainless steel or aluminum construction.
- The diffuser simply hinges down for easy access to the interior for cleaning and sanitation.
- Same unit will work for both T-bar or surface mount applications.
- The face of the diffuser is attached to the plenum with two stainless steel hinges. The opposite side is attached with 1/4 turn fasteners.
- The diffuser face simply hinges down for easy access to the interior for cleaning and sanitation.
- Perforated face has 3/32" holes on 60° 1/4" staggered centers (13% free area).
- Round inlets are standard.
- Integral seismic clips are standard.
- Clear anodized extruded aluminum filter frame with a test port for damper adjustment, filter pressure drop measurement or to perform leakage (scan) test.
- Filters are packaged independently from the diffuser final installation in the field (by others). Filter needs to be purchased separately.
- Integral damper with screwdriver slot adjustment is easily adjustable.
- Standard finish is #3 satin polished for stainless steel and Carnes bright white for aluminum.

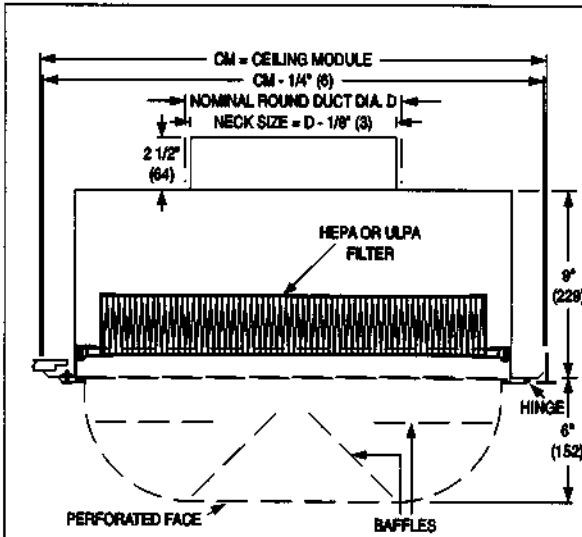


Recommended Accessories

- 316 stainless steel construction available.
- Other colors available upon request.
- Model DXHA HEPA filter 99.99% minimum removal efficiency on 0.3 micrometer particle size (p. A247).
- Model DXUA ULPA filter has 99.9995% minimum removal efficiency on 0.12 micrometer particle size (p. A247).

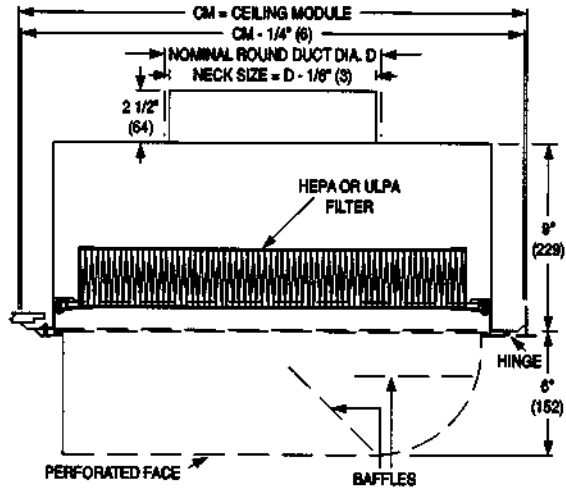
Model Numbering System





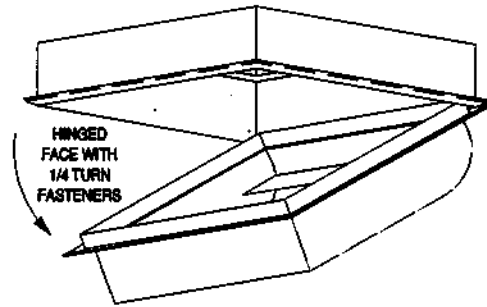
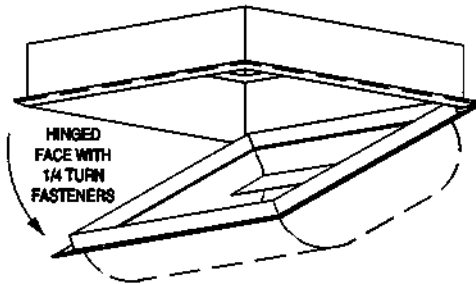
Model DC 180° Pattern Ceiling Module Sizes

Imperial Modules				Metric Modules	
Imperial Units (inches)		S.I. Units (mm)		S.I. Units (mm)	
D	CM	D	CM	D	CM
8	24 x 24	203	610 x 610	203	600 x 600
12	48 x 24	305	1219 x 610	305	1200 x 600

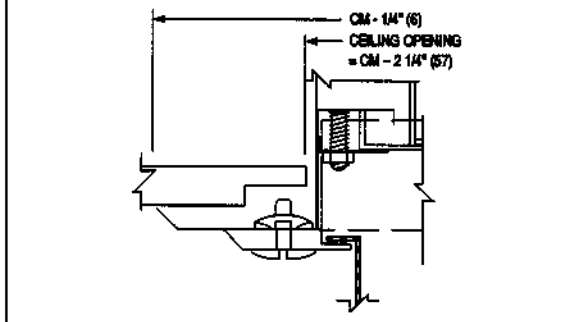


Model DC 90° Pattern Ceiling Module Sizes

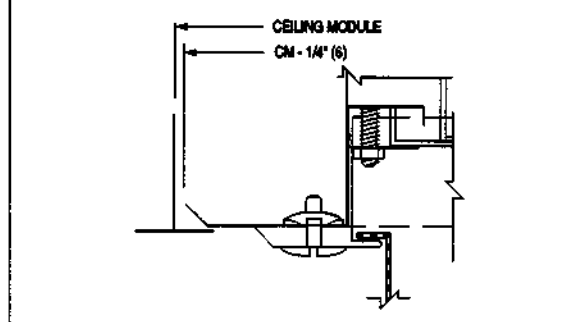
Imperial Modules				Metric Modules	
Imperial Units (inches)		S.I. Units (mm)		S.I. Units (mm)	
D	CM	D	CM	D	CM
8	48 x 12	203	1219 x 305	203	1200 x 300
8	24 x 24	203	610 x 610	203	600 x 600
12	48 x 24	305	1219 x 610	305	1200 x 600



Type S Surface Mount Detail



Type L Lay-in T-Bar Detail



Performance Data • Model DC • 180 Degree Pattern
With HEPA Filter • 99.99% Minimum Removal Efficiency on 0.30 Micrometer Particle Size

24 x 24 (600 x 600) Module Size • 8" (203 mm) dia. Inlet • Δ T - 10°F

Air Flow CFM	Pt	Ps	NC	T Horizontal Throw @			T Vertical Throw @		
				100 FPM	75 FPM	50 FPM	100 FPM	75 FPM	50 FPM
100	.14	.14	—	0.5	0.5	1.0	0.5	1.0	1.5
150	.32	.31	—	0.5	1.0	1.0	1.0	1.0	2.0
200*	.57	.55	16	0.5	1.0	1.5	1.5	2.0	3.0
250	.89	.86	19	1.0	1.5	2.0	2.0	2.5	3.5
295**	1.24	1.19	22	1.0	1.5	2.0	2.5	3.0	4.0

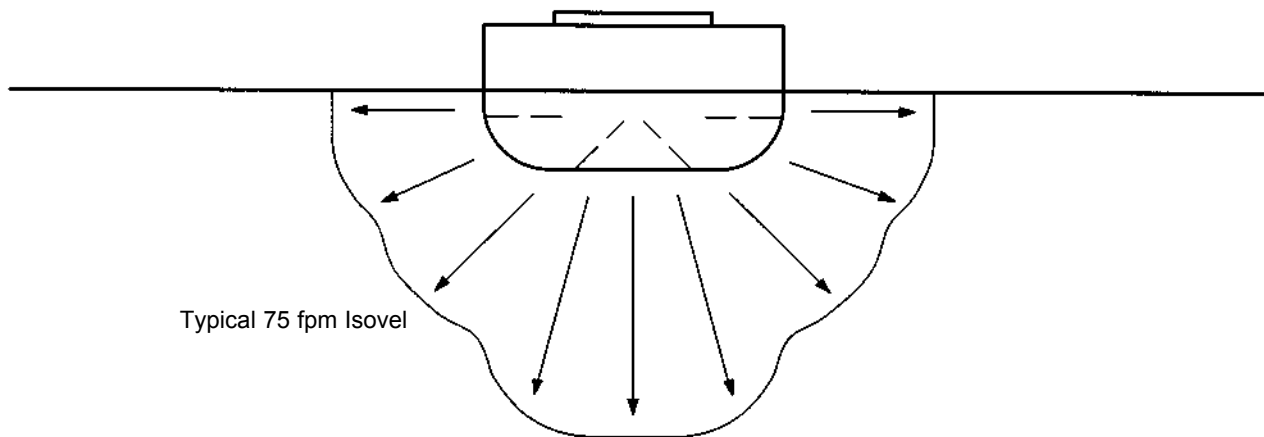
48 x 24 (1200 x 600) Module Size • 12" (305 mm) dia. Inlet • Δ T - 10°F

Air Flow CFM	Pt	Ps	NC	T Horizontal Throw @			T Vertical Throw @		
				100 FPM	75 FPM	50 FPM	100 FPM	75 FPM	50 FPM
300	.22	.22	—	0.5	0.5	1.0	0.5	1.0	1.5
400	.40	.38	—	0.5	1.0	1.5	0.5	1.0	2.0
500*	.62	.60	19	1.0	1.0	1.5	1.0	1.5	2.0
600	.90	.86	23	1.0	1.5	2.0	1.5	2.0	2.5
715**	1.27	1.22	28	1.5	2.0	2.5	2.0	2.5	3.0

- CFM** - cubic feet per minute
- FPM** - feet per minute velocity
- Pt** - total pressure - inches w.g.
- Ps** - static pressure - inches w.g.
- T** - throw in feet
- NC** - Noise Criteria (values) based on 10 dB room absorption, re 10⁻¹² watts

- Performance Notes:**
1. The radial flow pattern of the Model DC is unlike conventional air distribution devices. The data presented above describes isovels by average terminal velocity in both horizontal and vertical directions.
 2. ΔT is the temperature difference between supply and room air. Testing is based on 10°F (5.5°C) cooling.
 3. Performance data is for diffusers with clean filters. Filters may be operated up to a final resistance of 2" w.g. (500 Pa).

- 4.*Recommended maximum airflow is based on 100 fpm velocity per square foot of filter media face area.
- **Maximum airflow shown is based on 150 fpm velocity per square foot of filter media face area. Exceeding these airflows may result in reduced filter efficiencies. Refer to the engineering section for more details.
5. Data derived from tests conducted in accordance with ANSI/ASHRAE Standard 70 — 1991.



Performance Data • Model DC • 90 Degree Pattern
With HEPA Filter • 99.99% Minimum Removal Efficiency on 0.30 Micrometer Particle Size
24 x 24 (600 x 600) Module Size • 8" (203 mm) dia. Inlet • Δ T - 10°F

Air Flow CFM	Pt	Ps	NC	T Horizontal Throw @			T Vertical Throw @		
				100 FPM	75 FPM	50 FPM	100 FPM	75 FPM	50 FPM
100	.14	.14	—	0.5	1.0	1.5	1.0	1.5	2.5
150	.32	.31	—	1.0	1.5	2.0	2.0	2.5	3.5
200*	.57	.55	16	1.5	2.0	2.5	2.5	3.5	4.0
250	.89	.86	19	2.0	2.5	3.0	3.0	3.5	4.5
295**	1.24	1.19	22	2.0	2.5	3.5	3.5	4.0	5.0

48 x 24 (1200 x 600) Module Size • 12" (305 mm) dia. Inlet • Δ T - 10°F

Air Flow CFM	Pt	Ps	NC	T Horizontal Throw @			T Vertical Throw @		
				100 FPM	75 FPM	50 FPM	100 FPM	75 FPM	50 FPM
300	.23	.22	—	0.5	1.0	1.5	1.5	2.0	2.5
400	.40	.39	—	1.0	1.5	2.0	2.0	3.0	4.0
500*	.63	.60	19	1.0	2.0	3.0	2.5	3.5	5.0
600	.91	.87	23	1.5	2.5	3.5	3.0	4.0	6.0
715**	1.29	1.23	28	2.0	3.0	4.0	3.5	4.5	6.5

48 x 12 (1200 x 300) Module Size • 8" (203 mm) dia. Inlet • Δ T - 10°F

Air Flow CFM	Pt	Ps	NC	T Horizontal Throw @			T Vertical Throw @		
				100 FPM	75 FPM	50 FPM	100 FPM	75 FPM	50 FPM
100	.14	.14	—	0.5	0.5	1.0	0.5	0.5	1.0
150	.33	.31	—	0.5	1.0	1.5	0.5	1.0	1.5
200*	.58	.56	17	1.0	1.5	2.0	0.5	1.0	1.5
250	.90	.87	20	1.0	1.5	2.5	1.0	1.5	2.0
290**	1.22	1.17	23	1.5	2.0	3.0	1.0	1.5	2.0

CFM - cubic feet per minute
FPM - feet per minute velocity
Pt - total pressure - inches w.g.
Ps - static pressure - inches w.g.
T - throw in feet
NC - Noise Criteria (values) based on 10 dB room absorption, re 10⁻¹² watts

Performance Notes:

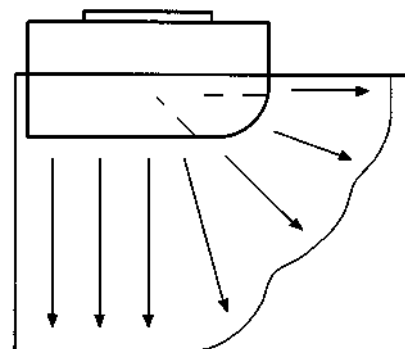
- The radial flow pattern of the Model DC is unlike conventional air distribution devices. The data presented above describes isovels by average terminal velocity in both horizontal and vertical directions.
- ΔT is the temperature difference between supply and room air. Testing is based on 10°F (5.5°C) cooling.

3. Performance data is for diffusers with clean filters. Filters may be operated up to a final resistance of 2" w.g. (500 Pa).

4.*Recommended maximum airflow is based on 100 fpm velocity per square foot of filter media face area. **Maximum airflow shown is based on 150 fpm velocity per square foot of filter media face area. Exceeding these airflows may result in reduced filter efficiencies.

Refer to the engineering section for more details.

5. Data derived from tests conducted in accordance with ANSI/ASHRAE Standard 70 — 1991.



Typical 75 fpm Isovel

Performance Data • Model DC • 180 Degree Pattern
With ULPA Filter • 99.9995% Minimum Removal Efficiency on 0.12 Micrometer Particle Size

24 x 24 (600 x 600) Module Size • 8" (203 mm) dia. Inlet • Δ T - 10°F

Air Flow CFM	Pt	Ps	NC	T Horizontal Throw @			T Vertical Throw @		
				100 FPM	75 FPM	50 FPM	100 FPM	75 FPM	50 FPM
100	.17	.16	—	0.5	0.5	1.0	0.5	1.0	1.5
150	.38	.37	—	0.5	1.0	1.0	1.0	1.0	2.0
200*	.68	.66	16	0.5	1.0	1.5	1.5	2.0	3.0
250	1.06	1.02	19	1.0	1.5	2.0	2.0	2.5	3.5
295**	1.47	1.43	22	1.0	1.5	2.0	2.5	3.0	4.0

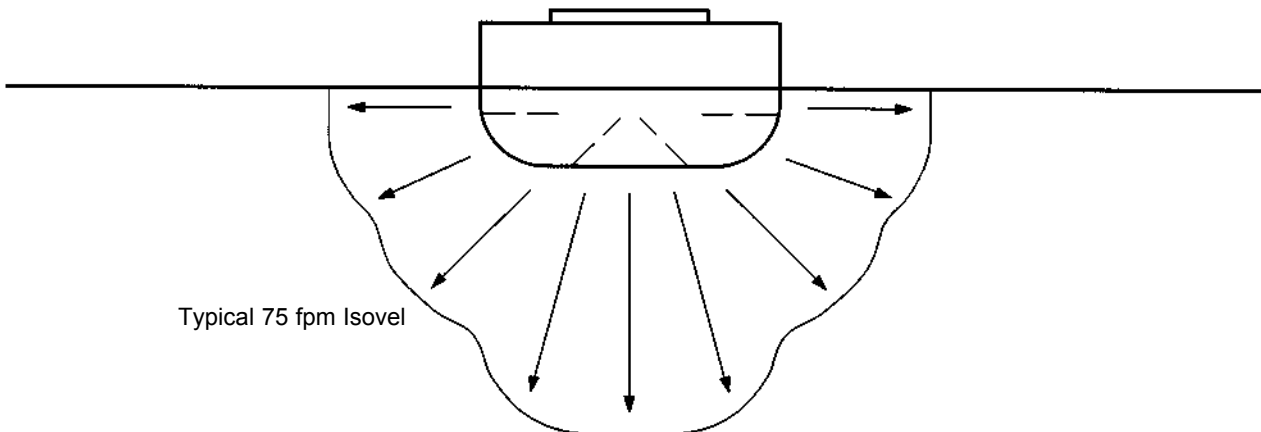
48 x 24 (1200 x 600) Module Size • 12" (305 mm) dia. Inlet • Δ T - 10°F

Air Flow CFM	Pt	Ps	NC	T Horizontal Throw @			T Vertical Throw @		
				100 FPM	75 FPM	50 FPM	100 FPM	75 FPM	50 FPM
300	.27	.26	—	0.5	0.5	1.0	0.5	1.0	1.5
400	.48	.46	—	0.5	1.0	1.5	0.5	1.0	2.0
500*	.74	.72	19	1.0	1.0	1.5	1.0	1.5	2.0
600	1.07	1.03	23	1.0	1.5	2.0	1.5	2.0	2.5
715**	1.52	1.47	28	1.5	2.0	2.5	2.0	2.5	3.0

- CFM** - cubic feet per minute
- FPM** - feet per minute velocity
- Pt** - total pressure - inches w.g.
- Ps** - static pressure - inches w.g.
- T** - throw in feet
- NC** - Noise Criteria (values) based on 10 dB room absorption, re 10⁻¹² watts

- Performance Notes:**
1. The radial flow pattern of the Model DC is unlike conventional air distribution devices. The data presented above describes isovels by average terminal velocity in both horizontal and vertical directions.
 2. ΔT is the temperature difference between supply and room air. Testing is based on 10°F (5.5°C) cooling.
 3. Performance data is for diffusers with clean filters. Filters may be operated up to a final resistance of 2" w.g. (500 Pa).

- 4.*Recommended maximum airflow is based on 100 fpm velocity per square foot of filter media face area.
- **Maximum airflow shown is based on 150 fpm velocity per square foot of filter media face area. Exceeding these airflows may result in reduced filter efficiencies. Refer to the engineering section for more details.
5. Data derived from tests conducted in accordance with ANSI/ASHRAE Standard 70 — 1991.



Performance Data • Model DC • 90 Degree Pattern
With ULPA Filter • 99.9995% Minimum Removal Efficiency on 0.12 Micrometer Particle Size

24 x 24 (600 x 600) Module Size • 8" (203 mm) dia. Inlet • ΔT - 10°F

Air Flow CFM	Pt	Ps	NC	T Horizontal Throw @			T Vertical Throw @		
				100 FPM	75 FPM	50 FPM	100 FPM	75 FPM	50 FPM
100	.17	.17	—	0.5	1.0	1.5	1.0	1.5	2.5
150	.38	.37	—	1.0	1.5	2.0	2.0	2.5	3.5
200*	.68	.66	16	1.5	2.0	2.5	2.5	3.5	4.0
250	1.07	1.03	19	2.0	2.5	3.0	3.0	3.5	4.5
295**	1.49	1.44	22	2.0	2.5	3.5	3.5	4.0	5.0

48 x 24 (1200 x 600) Module Size • 12" (305 mm) dia. Inlet • ΔT - 10°F

Air Flow CFM	Pt	Ps	NC	T Horizontal Throw @			T Vertical Throw @		
				100 FPM	75 FPM	50 FPM	100 FPM	75 FPM	50 FPM
300	.27	.26	—	0.5	1.0	1.5	1.5	2.0	2.5
400	.48	.46	—	1.0	1.5	2.0	2.0	3.0	4.0
500*	.75	.72	19	1.0	2.0	3.0	2.5	3.5	5.0
600	1.08	1.04	23	1.5	2.5	3.5	3.0	4.0	6.0
715**	1.53	1.48	28	2.0	3.0	4.0	3.5	4.5	6.5

48 x 12 (1200 x 300) Module Size • 8" (203 mm) dia. Inlet • ΔT - 10°F

Air Flow CFM	Pt	Ps	NC	T Horizontal Throw @			T Vertical Throw @		
				100 FPM	75 FPM	50 FPM	100 FPM	75 FPM	50 FPM
100	.17	.17	—	0.5	0.5	1.0	0.5	0.5	1.0
150	.39	.38	—	0.5	1.0	1.5	0.5	1.0	1.5
200*	.69	.67	17	1.0	1.5	2.0	0.5	1.0	1.5
250	1.08	1.04	20	1.0	1.5	2.5	1.0	1.5	2.0
290**	1.45	1.40	23	1.5	2.0	3.0	1.0	1.5	2.0

CFM - cubic feet per minute

FPM - feet per minute velocity

Pt - total pressure - inches w.g.

Ps - static pressure - inches w.g.

T - throw in feet

NC - Noise Criteria (values) based on 10 dB room absorption, re 10⁻¹² watts

Performance Notes:

1. The radial flow pattern of the Model DC is unlike conventional air distribution devices. The data presented above describes isovels by average terminal velocity in both horizontal and vertical directions.

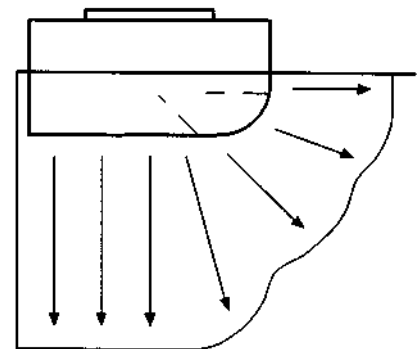
2. ΔT is the temperature difference between supply and room air. Testing is based on 10°F (5.5°C) cooling.

3. Performance data is for diffusers with clean filters. Filters may be operated up to a final resistance of 2" w.g. (500 Pa).

4.*Recommended maximum airflow is based on 100 fpm velocity per square foot of filter media face area. **Maximum airflow shown is based on 150 fpm velocity per square foot of filter media face area. Exceeding these airflows may result in reduced filter efficiencies.

Refer to the engineering section for more details.

5. Data derived from tests conducted in accordance with ANSI/ASHRAE Standard 70 — 1991.



Typical 75 fpm Isovel