

RD *Round Diffuser*





Introduction

Prudent Aire Round Diffuser (RDA/RDPA/RPDA) has a versatile design to provide a wide range of flow, ceiling height and supply temperature. Due to its design, the Round Diffuser is suitable for use in wide variety of buildings and applications. The multicore design is mainly for high flow requirements and the single plate/ perforated core is mainly suited for high-end interior designs, albeit lower flow.

The Round Diffuser is also suited for both ceiling and exposed duct installation. For switching between horizontal and vertical throw, it is adjusted via rotation of the center core (clockwise/ anti-clockwise rotation).

Due to the airflow adjustment flexibility, the Round Diffuser is suitable for use in individual, conventional uniform zone or with VAV terminals.

CONSTRUCTIONS & MATERIALS

- Available in multiple/single core configurations
- Adjustable flow direction
- Removable center cores
- Standard sizes of 8", 10", 12" & 14"

Outer Cone Construction



Extruded Aluminium

Inner Cone Construction



Extruded Aluminium

Surface Finishing

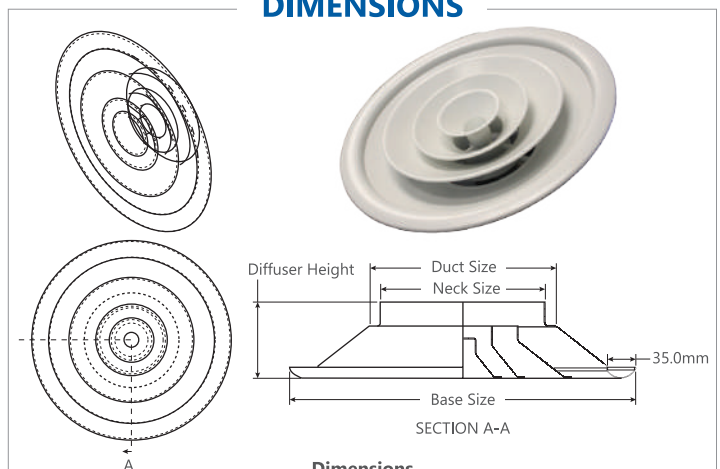


White (Matt)



White (Matt)

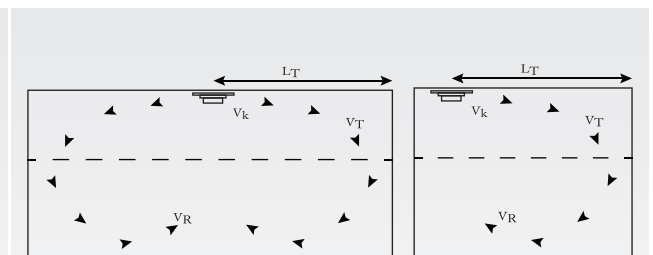
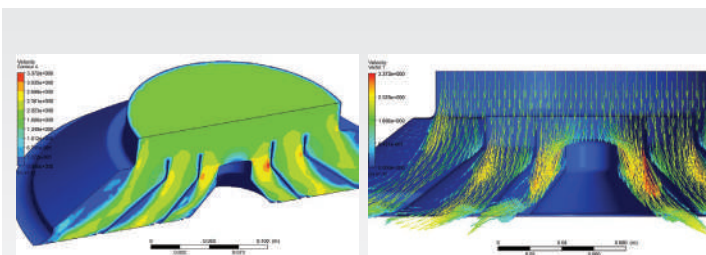
DIMENSIONS



Dimensions

Order Size (Inch)	Neck Size (mm)	Base Size (mm)	Duct Size (mm)	Height (mm)
8.0	196	412	234	90
10.0	240	476	290	85
12.0	296	508	323	96
14.0	346	600	378	100

FOR SINGLE CORE PLATE DEFLECTOR



TECHNICAL PERFORMANCE DATA

RD (Cone Type)



* The effective area given is to the best estimation & knowledge of Prudentaire's engineers at the point of entry.

* Table values obtained below are for horizontal supply performance.

* For vertical flow orientation, the throws are 70% of the table values below.

Order Size inch	Neck Area (Eff. Area) m ²	Unit Volume Flowrate, m ³ /hr Unit Volume Flowrate, l/s	NR20		NR30		NR40		1400 392	1600 448	2000 560	2500 700
			250 70	400 112	500 140	800 224	1000 280	1400 392				
8.0	0.030 (0.026)hor (0.019)vert	Throw Distance (0.25 m/s), m	1.7	2.8	3.5	5.6	6.8	-	-	-	-	-
		Face Velocity, m/s	2.7	4.3	5.3	8.5	10.7	-	-	-	-	-
		Total Pressure Loss, Pa	7.0	17.0	25.0	65.0	>90.0	-	-	-	-	-
		Noise Rating (NR)	<20	<20	21	35	41	-	-	-	-	-
		Temperature Quotient	0.14	0.065	0.045	-	-	-	-	-	-	-
		Induction Ratio	10.0	19.0	25	-	-	-	-	-	-	-
10.0	0.048 (0.042)hor (0.027)vert	Throw Distance (0.25 m/s), m	-	2.2	2.7	4.5	5.5	7.7	8.6	-	-	-
		Face Velocity, m/s	-	2.6	3.3	5.3	6.6	9.3	10.6	-	-	-
		Total Pressure Loss, Pa	-	7.0	9.5	24.0	37.0	80	>90	-	-	-
		Noise Rating (NR)	-	<20	<20	23	29	38	42	-	-	-
		Temperature Quotient	-	0.14	0.095	0.045	-	-	-	-	-	-
		Induction Ratio	-	11.0	14.0	26.0	-	-	-	-	-	-
12.0	0.069 (0.062)hor (0.043)vert	Throw Distance (0.25 m/s), m	-	-	-	3.7	4.8	6.7	7.7	9.4	-	-
		Face Velocity, m/s	-	-	-	3.6	4.5	6.3	7.2	9.0	-	-
		Total Pressure Loss, Pa	-	-	-	12.0	18.0	32.0	45.0	70.0	-	-
		Noise Rating (NR)	-	-	-	<20	25	34	38	44	-	-
		Temperature Quotient	-	-	-	0.09	0.055	-	-	-	-	-
		Induction Ratio	-	-	-	16.0	22.0	-	-	-	-	-
14.0	0.094 (0.086)hor (0.058)vert	Throw Distance (0.25 m/s), m	-	-	-	-	3.8	5.1	5.9	7.6	9.4	
		Face Velocity, m/s	-	-	-	-	3.3	4.6	5.2	6.5	8.2	
		Total Pressure Loss, Pa	-	-	-	-	9.5	18.5	23.0	35.0	60.0	
		Noise Rating (NR)	-	-	-	-	<20	24	27	33	39	
		Temperature Quotient	-	-	-	-	0.11	0.07	-	-	-	
		Induction Ratio	-	-	-	-	13.0	20.0	-	-	-	

RDP (Plate Type)



* The effective area given is to the best estimation & knowledge of Prudentaire's engineers at the point of entry.

* Table values obtained below are for horizontal supply performance.

* For vertical flow orientation, the throws are 70% of the table values below.

Order Size inch	Neck Area (Eff. Area) m ²	Unit Volume Flowrate, m ³ /hr Unit Volume Flowrate, l/s	NR20		NR30		NR40		1400 392	1600 448	2000 560	2500 700
			250 70	400 112	500 140	800 224	1000 280	1400 392				
8.0	0.030 (0.017)hor (0.013)vert	Throw Distance (0.25 m/s), m	1.7	2.7	3.5	5.6	-	-	-	-	-	-
		Face Velocity, m/s	4.1	6.5	8.1	13.0	-	-	-	-	-	-
		Total Pressure Loss, Pa	9.0	22.0	32.0	>50	-	-	-	-	-	-
		Noise Rating (NR)	<20	22	30	40	-	-	-	-	-	-
		Temperature Quotient	-	-	-	-	-	-	-	-	-	-
		Induction Ratio	-	-	-	-	-	-	-	-	-	-
10.0	0.048 (0.027)hor (0.017)vert	Throw Distance (0.25 m/s), m	-	2.2	2.7	4.5	5.5	7.7	-	-	-	-
		Face Velocity, m/s	-	4.1	5.1	8.2	10.3	14.4	-	-	-	-
		Total Pressure Loss, Pa	-	9.0	14.0	32.0	>50	>50	-	-	-	-
		Noise Rating (NR)	-	<20	21	32	38	47	-	-	-	-
		Temperature Quotient	-	-	-	-	-	-	-	-	-	-
		Induction Ratio	-	-	-	-	-	-	-	-	-	-
12.0	0.069 (0.043)hor (0.030)vert	Throw Distance (0.25 m/s), m	-	-	2.3	3.7	4.7	6.7	7.6	9.4	-	-
		Face Velocity, m/s	-	-	3.2	5.2	6.5	9.0	10.3	12.9	-	-
		Total Pressure Loss, Pa	-	-	5.2	14.5	23.0	40.0	>50	>50	-	-
		Noise Rating (NR)	-	-	<20	22	27	36	41	46	-	-
		Temperature Quotient	-	-	-	-	-	-	-	-	-	-
		Induction Ratio	-	-	-	-	-	-	-	-	-	-
14.0	0.094 (0.068)hor (0.046)vert	Throw Distance (0.25 m/s), m	-	-	-	3.0	3.8	5.2	5.9	7.6	9.4	
		Face Velocity, m/s	-	-	-	3.3	4.1	5.7	6.5	8.2	10.2	
		Total Pressure Loss, Pa	-	-	-	5.5	9.0	17.0	23.0	32.0	>50	
		Noise Rating (NR)	-	-	-	<20	<20	25	29	35	42	
		Temperature Quotient	-	-	-	-	-	-	-	-	-	
		Induction Ratio	-	-	-	-	-	-	-	-	-	

RDPR (Perforated Type)



* The effective area given is to the best estimation & knowledge of Prudentaire's engineers at the point of entry.

* Table values obtained below are for horizontal supply performance.

* For vertical flow orientation, the throws are 70% of the table values below.

Order Size, inch	Unit Volume Flowrate, m ³ /hr Unit Volume Flowrate, l/s	NR20		NR30		NR40		1400 392	1600 448	2000 560	2500 700
		250 70	400 112	500 140	800 224	1000 280	1400 392				
8.0	Throw Distance (0.25 m/s), m	2.5	4.2	5.5	9.4	-	-	-	-	-	-
	Total Pressure Loss, Pa	12.8	42.0	65.8	>150	-	-	-	-	-	-
	Noise Rating (NR)	<20	26	33	>45	-	-	-	-	-	-
	Temperature Quotient	-	-	-	-	-	-	-	-	-	-
	Induction Ratio	-	-	-	-	-	-	-	-	-	-
10.0	Throw Distance (0.25 m/s), m	-	3.0	4.2	7.2	11.5	-	-	-	-	-
	Total Pressure Loss, Pa	-	19.0	35.3	91.4	136.2	-	-	-	-	-
	Noise Rating (NR)	-	<20	21	37	>45	-	-	-	-	-
	Temperature Quotient	-	-	-	-	-	-	-	-	-	-
	Induction Ratio	-	-	-	-	-	-	-	-	-	-
12.0	Throw Distance (0.25 m/s), m	-	-	3.0	5.1	6.5	9.3	-	-	-	-
	Total Pressure Loss, Pa	-	-	17.5	46.3	65.5	104	-	-	-	-
	Noise Rating (NR)	-	-	<20	25	34	>45	-	-	-	-
	Temperature Quotient	-	-	-	-	-	-	-	-	-	-
	Induction Ratio	-	-	-	-	-	-	-	-	-	-
14.0	Throw Distance (0.25 m/s), m	-	-	-	4.9	5.0	5.2	-	-	-	-
	Total Pressure Loss, Pa	-	-	-	33.0	43.0	63.0	-	-	-	-
	Noise Rating (NR)	-	-	-	23	32	>45	-	-	-	-
	Temperature Quotient	-	-	-	-	-	-	-	-	-	-
	Induction Ratio	-	-	-	-	-	-	-	-	-	-

ROUND DIFFUSER TECHNICAL SPECIFICATION

Frame Construction:

1. Frame to be in extruded aluminium. Frame thickness should be 0.9mm - 1.2mm depends on size, unless otherwise stated.
2. Frame height to be in 85mm - 100mm depends on size.

Core Construction:

1. Vanes to be in extruded aluminium.
2. Vanes to be in 1.0mm thick, 3 layer of vanes to be fix pattern for 360° directional air distribution.

Finishing:

1. Finishing should be white powder coated, oven baked as standard RAL 9010 SG or HY-1001/A127. Others available upon request.

Performance:

1. Free area of the Round Diffuser (Cone Type) should not be less than 56%
2. Round Diffusers are designed to be ceiling mounted, round duct connection with damper should to be installed at the neck of the diffuser for volume control purpose, unless otherwise stated.

DIFFUSER + ACCESSORIES COMBINATION









RD | *Round Diffuser*



Products Range

- Grilles 
- Diffusers  ◀
- Dampers 
- Fire & Smoke Protection 
- VAV 
- Others 
- Accessories 



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