SWIRL DIFFUSER

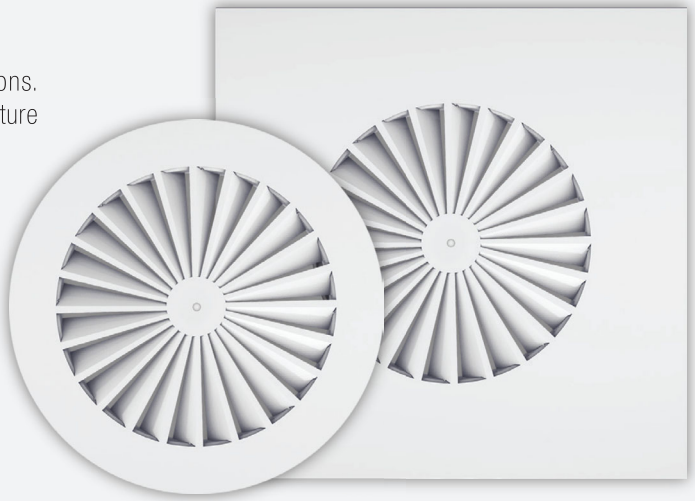
PRODUCT DATASHEET

OVERVIEW

Swirl diffuser for ceiling or freely suspended applications. Blade geometry optimised for VAV, including low temperature supply air (≈8°C).

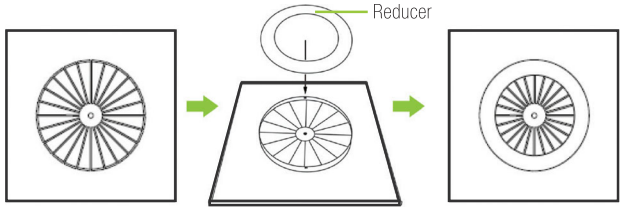
Available in:

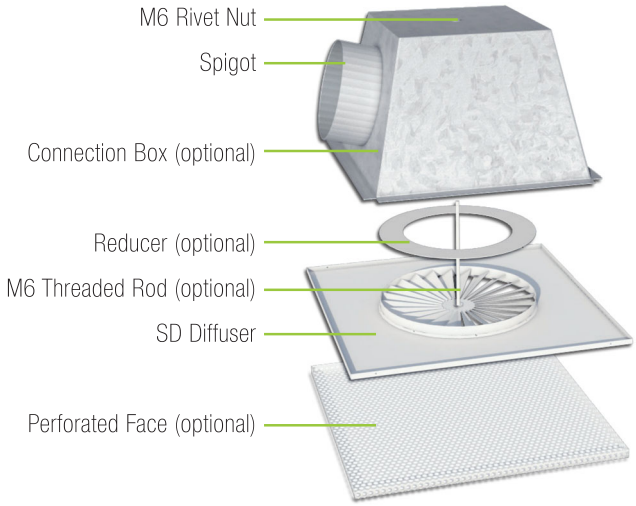
- 2 shapes - round or square
- 4 neck sizes - DN200, DN250, DN350, DN500
- 4 discharge patterns, via segment covers
- 6 optional reducers
- Optional perforated face



Reducers

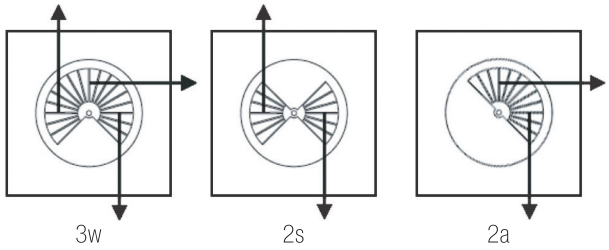
The diffuser effective neck diameter may be reduced by the insertion of a suitable reducer to ensure stable airflow patterns at low airflow rates, especially in VAV applications.





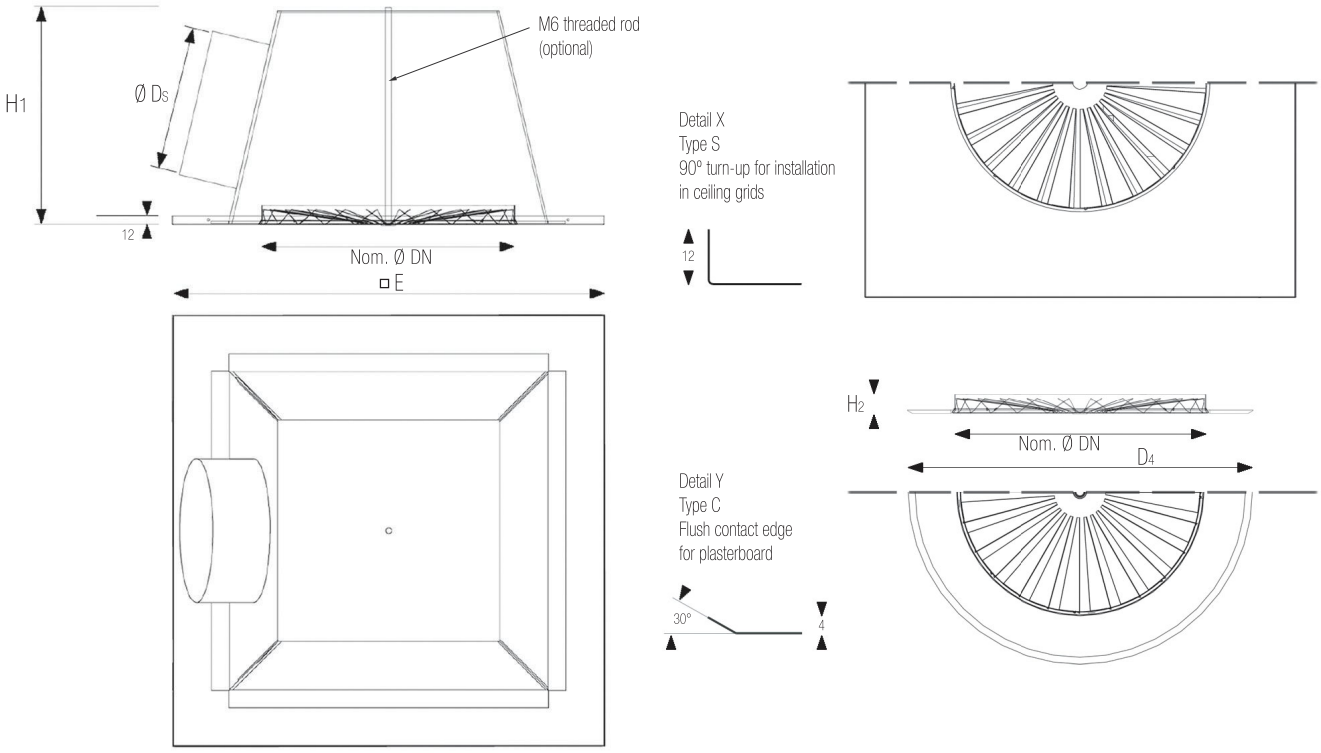
Segment Covers

Segment covers may be used to blank off one or more blade quadrants to create 3-way, 2-way symmetrical or 2-way asymmetrical discharge patterns.



Harmony GRILLES

TECHNICAL DATA



Nominal diameter DN	Ceiling grid	Reducer size	Volume flow rate [1]			Dimensions in mm					Weight in Kg	
			V̇ L/s at ΔT = -15 K	V̇ L/s at ΔT = -12 K	V_{min} in L/s [2] with perf. [5] ΔT = -10 K	□E	Ø Ds [4]	H1	H2	D4	Air Outlet	Connection Box
DN200	□ 300 [3]	0	23 - 60	20 - 60	32 - 50	□ 295 [3]	≥149	250	20	270	0.7	3.0
DN250	□ 300 [3]	0	34 - 100	30 - 100	45 - 85	□ 295 [3]	≥199	250	25	335	1.2	3.5
DN350	□ 400 □ 450 □ 500 □ 600	0	55 - 175	50 - 175	80 - 160	□ 395 [3] □ 445 [3] □ 495 [3] □ 595 [3]	≥249	340	28	470	2.0 to 3.0	4.8
		1	44 - 140	40 - 140	65 - 125							
		2	38 - 120	35 - 120	55 - 110							
		3	33 - 95	30 - 95	45 - 90							
		4	24 - 75	22 - 75	34 - 70							
		5	18 - 55	16 - 55	25 - 50							
		6	14 - 40	12 - 40	20 - 36							
DN500	□ 600	0	130 - 400	120 - 400	180 - 350	□ 595	≥349	460	36	675	2.7 to 3.6	7.4
		1	120 - 320	100 - 320	145 - 300							
		2	100 - 290	90 - 290	130 - 260							
		3	75 - 240	70 - 240	110 - 210							
		4	60 - 180	55 - 180	85 - 170							
		5	50 - 145	45 - 145	65 - 135							

1) Δp_t less than 45 Pa, Lp per diffuser less than NC30 (based on 10 dB (A) room absorbtion). $\dot{V}_{min}$ valid for diffuser flush with closed ceiling; add 30% to $\dot{V}_{min}$ if freely suspended.
2) Perforated face adds 3 dB and increases pressure loss by 10%.
3) Other dimensions available on request.
4) Min. ØDs valid for R0-4w. For other reducer sizes / discharge patterns refer to performance tables.
5) Perforation details on request; diffuser height increases by 10 mm.

Products supplied may differ slightly from those described in this technical brochure due to on-going product development.

PERFORMANCE TABLES - DN200 & DN250

Quick selection guide. Refer to the online selection tool for detailed selections.

DN200-4w

$\dot{V}$	P_{st}	P_t	$L_{W(A)}$	$L_{P(A)}$ [1]	C_{min} [2]	C_{max} [2]
L/s	Pa	Pa	dB(A)	NC	m	m
21 [3]	4.4	5.3	<25	<10	1.2 [6]	4.6 [6]
23 [4]	5.2	6.3	<25	<10	1.3 [6]	4.8 [7]
25	6.1	7.3	<25	<10	1.4 [7]	5.1 [7]
30	8.6	10.3	27	12	1.5 [7]	5.9 [7]
40	14.7	17.7	34	19	1.8 [7]	7.4 [7]
50	22.2	27	40	25	2.0 [7]	8.9 [7]
61 [5]	32.1	39.3	45	30	4.0 [7]	16.0 [7]

DN200-3w

$\dot{V}$	P_{st}	P_t	$L_{W(A)}$	$L_{P(A)}$ [1]	C_{min} [2]	C_{max} [2]
L/s	Pa	Pa	dB(A)	NC	m	m
16 [3]	4.4	5.4	<25	<10	1.0 [6]	4.0 [6]
17 [4]	4.9	6.1	<25	<10	1.2 [7]	4.1 [7]
20	6.7	8.3	<25	<10	1.2 [7]	4.6 [7]
25	10.1	12.6	28	13	1.4 [7]	5.5 [7]
30	14.1	17.7	33	18	1.5 [7]	6.4 [7]
40	24.1	30.5	40	25	1.8 [7]	8.1 [7]
45 [5]	30	38.1	43	28	2.0 [7]	9.0 [7]

DN200-2w

$\dot{V}$	P_{st}	P_t	$L_{W(A)}$	$L_{P(A)}$ [1]	C_{min} [2]	C_{max} [2]
L/s	Pa	Pa	dB(A)	NC	m	m
11 [3]	4.6	5.7	<25	<10	0.8 [6]	3.4 [6]
12 [4]	5.4	6.8	<25	<10	0.9 [7]	3.6 [7]
14	7.1	9.1	<25	<10	0.9 [7]	4.0 [7]
16	9.2	11.6	26	11	1.0 [7]	4.4 [7]
20	13.8	17.7	31	16	1.1 [7]	5.2 [7]
25	20.9	27	37	22	1.3 [7]	6.3 [7]
30 [5]	29.3	38.1	41	26	1.6 [7]	7.3 [7]

DN250-4w

$\dot{V}$	P_{st}	P_t	$L_{W(A)}$	$L_{P(A)}$ [1]	C_{min} [2]	C_{max} [2]
L/s	Pa	Pa	dB(A)	NC	m	m
31 [3]	3.8	4.3	<25	<10	1.4 [6]	5.6 [6]
34 [4]	4.5	5.2	<25	<10	1.6 [7]	5.8 [7]
40	6.1	7.1	<25	<10	1.7 [7]	6.5 [7]
60	13.1	15.3	31	14	2.1 [7]	8.8 [7]
80	22.5	26.4	38	21	2.5 [7]	11.0 [7]
100	34.2	40.3	44	27	2.9 [7]	13.3 [7]
105 [5]	37.5	44.2	45	28	3.0 [7]	13.8 [7]

DN250-3w

$\dot{V}$	P_{st}	P_t	$L_{W(A)}$	$L_{P(A)}$ [1]	C_{min} [2]	C_{max} [2]
L/s	Pa	Pa	dB(A)	NC	m	m
23 [3]	3.7	4.3	<25	<10	1.2 [6]	4.8 [6]
26 [4]	4.7	5.4	<25	<10	1.4 [7]	5.1 [7]
40	10.5	12.2	27	<10	1.7 [7]	6.9 [7]
50	16	18.6	32	15	2.0 [7]	8.2 [7]
60	22.6	26.4	37	20	2.2 [7]	9.5 [7]
70	30	35	41	24	2.4 [7]	10.8 [7]
78 [5]	37.1	43.4	44	27	2.6 [7]	11.9 [7]

DN250-2w

$\dot{V}$	P_{st}	P_t	$L_{W(A)}$	$L_{P(A)}$ [1]	C_{min} [2]	C_{max} [2]
L/s	Pa	Pa	dB(A)	NC	m	m
16 [3]	4.1	4.6	<25	<10	1.0 [6]	4.0 [6]
18 [4]	5.1	5.8	<25	<10	1.2 [7]	4.3 [7]
20	6.3	7.1	<25	<10	1.2 [7]	4.6 [7]
30	13.5	15.3	28	11	1.5 [7]	6.2 [7]
40	23.3	26.4	35	18	1.8 [7]	7.8 [7]
50	35.5	40.3	41	24	2.1 [7]	9.4 [7]
52 [5]	38.2	43.4	42	25	2.1 [7]	9.7 [7]

Key:

4w = 4-way blow; 3w = 3-way blow; 2w = 2-way blow

Notes:

1) Based on 10 dB room absorption per diffuser.
2) Centre-line distance between diffusers, based on 2.7 to 4 m discharge height & ADPI ≥ 90%.
3) Minimum airflow rate @ $\Delta T_{supply\text{-}room}$ = -12 K.
4) Minimum airflow rate @ $\Delta T_{supply\text{-}room}$ = -15 K.
5) Maximum airflow rate for $P_t \leq 45$ Pa and $L_p \leq$ NC30.
6) Diffuser centre-line spacing @ $\Delta T_{supply\text{-}room}$ = -12 K for ADPI ≥ 90%.
7) Diffuser centre-line spacing @ $\Delta T_{supply\text{-}room}$ = -15 K for ADPI ≥ 90%.

PERFORMANCE TABLES - DN350

Quick selection guide. Refer to the online selection tool for detailed selections.

R0-4w Min. $ØD_S$ = 250 mm

$\dot{V}$	P_{st}	P_t	$L_{W(A)}$	$L_{P(A)}$ [1]	C_{min} [2]	C_{max} [2]
L/s	Pa	Pa	dB(A)	NC	m	m
50[3]	3.1	3.7	<25	<10	1.8[6]	7.1[6]
55[4]	3.7	4.4	<25	<10	2.1[7]	7.4[7]
75	6.3	7.7	<25	<10	2.4[7]	9.1[7]
100	10.3	12.8	30	16	2.7[7]	11.3[7]
125	15	18.9	36	21	3.1[7]	13.4[7]
150	20.5	26.1	40	25	3.5[7]	15.5[7]
180[5]	28	36.1	44	30	4.0[7]	16.0[7]

R1-4w / R0-3w Min. $ØD_S$ = 225 mm

$\dot{V}$	P_{st}	P_t	$L_{W(A)}$	$L_{P(A)}$ [1]	C_{min} [2]	C_{max} [2]
L/s	Pa	Pa	dB(A)	NC	m	m
40[3]	3.2	3.8	<25	<10	1.6[6]	6.3[6]
45[4]	4	4.8	<25	<10	1.9[7]	6.7[7]
60	6.7	8.1	26	<10	2.1[7]	8.2[7]
80	11.3	13.8	33	16	2.5[7]	10.1[7]
100	17	20.8	39	22	2.8[7]	12.1[7]
120	23.6	29.1	43	26	3.2[7]	14.0[7]
139[5]	30.9	38.2	47	30	3.5[7]	15.9[7]

R2-4w / R1-3w / R2-2w Min. $ØD_S$ = 200 mm

$\dot{V}$	P_{st}	P_t	$L_{W(A)}$	$L_{P(A)}$ [1]	C_{min} [2]	C_{max} [2]
L/s	Pa	Pa	dB(A)	NC	m	m
34[3]	3.6	4.3	<25	<10	1.5[6]	5.8[6]
39[4]	4.7	5.6	<25	<10	1.7[7]	6.3[7]
40	4.8	5.9	<25	<10	1.8[7]	6.4[7]
60	10.3	12.5	28	13	2.1[7]	8.5[7]
80	17.6	21.4	35	20	2.5[7]	10.6[7]
100	26.5	32.5	41	26	2.9[7]	12.7[7]
118[5]	35.8	44.3	45	30	3.2[7]	14.6[7]

R3-4w / R2-3w / R1-2w Min. $ØD_S$ = 175 mm

$\dot{V}$	P_{st}	P_t	$L_{W(A)}$	$L_{P(A)}$ [1]	C_{min} [2]	C_{max} [2]
L/s	Pa	Pa	dB(A)	NC	m	m
30[3]	3.8	4.7	<25	<10	1.4[6]	5.5[6]
34[4]	4.8	6	<25	<10	1.6[7]	5.9[7]
40	6.6	8.2	<25	<10	1.8[7]	6.6[7]
50	10.1	12.7	<25	12	2.0[7]	7.8[7]
65	16.8	21.2	29	18	2.0[7]	9.6[7]
80	25.1	31.8	34	23	2.3[7]	11.4[7]
95[5]	35	44.4	38	27	2.6[7]	13.1[7]

R4-4w / R3-3w / R2-2w Min. $ØD_S$ = 150 mm

$\dot{V}$	P_{st}	P_t	$L_{W(A)}$	$L_{P(A)}$ [1]	C_{min} [2]	C_{max} [2]
L/s	Pa	Pa	dB(A)	NC	m	m
22[3]	3.1	4	<25	<10	1.2[6]	4.7[6]
25[4]	4	5.2	<25	<10	1.4[7]	5.0
35	7.6	9.9	<25	<10	1.6[7]	6.4
45	12.3	16.2	28	13	1.9[7]	7.7
55	18.2	24	33	18	2.1[7]	9.0[7]
65	25.1	33.2	38	22	2.3[7]	10.3
75[5]	33.1	43.9	41	26	2.6[7]	11.7

R5-4w / R4-3w / R3-2w Min. $ØD_S$ = 125 mm

$\dot{V}$	P_{st}	P_t	$L_{W(A)}$	$L_{P(A)}$ [1]	C_{min} [2]	C_{max} [2]
L/s	Pa	Pa	dB(A)	NC	m	m
17[3]	3.6	4.7	<25	<10	1.0[6]	4.2[6]
19[4]	4.4	5.8	<25	<10	1.2[7]	4.4[7]
25	7.5	9.9	<25	<10	1.4[7]	5.3[7]
30	10.6	14.2	<25	<10	1.5[7]	6.1[7]
40	18.4	24.7	31	16	1.8[7]	7.7[7]
50	28.2	38.1	37	22	2.1[7]	9.3[7]
54[5]	32.7	44.3	39	24	2.2[7]	9.9[7]

R6-4w / R5-3w / R4-2w Min. $ØD_S$ = 125 mm

$\dot{V}$	P_{st}	P_t	$L_{W(A)}$	$L_{P(A)}$ [1]	C_{min} [2]	C_{max} [2]
L/s	Pa	Pa	dB(A)	NC	m	m
13[3]	5	5.7	<25	<10	0.9[6]	3.5[6]
15[4]	6.6	7.5	<25	<10	1.1[7]	3.9[7]
20	11.4	13	<25	<10	1.2[7]	5.0[7]
25	17.4	19.9	26	11	1.4[7]	6.0[7]
30	24.6	28.2	30	15	1.6[7]	7.0[7]
35	33	37.9	34	19	1.7[7]	8.0[7]
38[5]	38.6	44.3	37	21	1.8[7]	8.3[7]

Key:

R0 = No reducer
R1 to R6 = reducers 1 to 6
4w = 4-way blow; 3w = 3-way blow; 2w = 2-way blow

Notes:

1) Based on 10 dB room absorption per diffuser.
2) Centre-line distance between diffusers, based on 2.7 to 4 m discharge height & ADPI ≥ 90%.
3) Minimum airflow rate @ ΔTsupply-room = -12 K.
4) Minimum airflow rate @ ΔTsupply-room = -15 K.
5) Maximum airflow rate for Pt ≤ 45 Pa and Lp ≤ NC30.
6) Diffuser centre-line spacing @ ΔTsupply-room = -12 K for ADPI ≥ 90%.
7) Diffuser centre-line spacing @ ΔTsupply-room = -15 K for ADPI ≥ 90%.

PERFORMANCE TABLES - DN500

Quick selection guide. Refer to the online selection tool for detailed selections.

R0-4w Min. $ØD_S$ = 350 mm

$\dot{V}$	P_{st}	P_t	$L_{W(A)}$	$L_{P(A)}$ [1]	C_{min} [2]	C_{max} [2]
L/s	Pa	Pa	dB(A)	NC	m	m
117[3]	2.2	3.1	<25	<10	2.7[6]	10.8[6]
131[4]	2.8	3.9	<25	<10	3.2[7]	11.4[7]
200	6.7	9.3	28	13	3.9[7]	15.4[7]
250	10.5	14.6	33	18	4.4[7]	16.0[7]
300	15.3	21.2	38	23	4.9[7]	16.0[7]
350	21.1	29	41	27	5.4[7]	16.0[7]
400[5]	27.7	38.1	45	30	5.9[7]	16.0[7]

R1-4w / R0-3w Min. $ØD_S$ = 325 mm

$\dot{V}$	P_{st}	P_t	$L_{W(A)}$	$L_{P(A)}$ [1]	C_{min} [2]	C_{max} [2]
L/s	Pa	Pa	dB(A)	NC	m	m
108[3]	3.1	4.1	<25	<10	2.6[6]	10.4[6]
121[4]	3.9	5.2	<25	<10	3.1[7]	11.0[7]
150	6.1	8	27	10	3.4[7]	12.9[7]
200	11	14.5	34	17	4.0[7]	16.0[7]
250	17.4	22.8	40	23	4.5[7]	16.0[7]
300	25.3	33.2	44	27	5.1[7]	16.0[7]
320[5]	28.9	37.9	46	29	5.3[7]	16.0[7]

R2-4w / R1-3w / R2-2w Min. $ØD_S$ = 300 mm

$\dot{V}$	P_{st}	P_t	$L_{W(A)}$	$L_{P(A)}$ [1]	C_{min} [2]	C_{max} [2]
L/s	Pa	Pa	dB(A)	NC	m	m
90[3]	2.4	3.4	<25	<10	2.4[6]	9.5[6]
101[4]	3.1	4.4	<25	<10	2.8[7]	10.1[7]
125	5	6.8	<25	<10	3.1[7]	11.7[7]
150	7.3	10	29	13	3.4[7]	13.4[7]
200	13.6	18.4	36	20	4.0[7]	16.0[7]
250	21.9	29.4	42	26	4.6[7]	16.0[7]
290[5]	30.2	40.3	45	30	5.0[7]	16.0[7]

R3-4w / R2-3w / R1-2w Min. $ØD_S$ = 275 mm

$\dot{V}$	P_{st}	P_t	$L_{W(A)}$	$L_{P(A)}$ [1]	C_{min} [2]	C_{max} [2]
L/s	Pa	Pa	dB(A)	NC	m	m
68[3]	2.7	3.7	<25	<10	2.1[6]	8.4[6]
75[4]	3.4	4.3	<25	<10	2.4[7]	8.7[7]
100	6.2	7.9	<25	<10	2.8[7]	10.6[7]
125	9.9	12.6	29	13	3.1[7]	12.5[7]
150	14.6	18.4	33	18	3.4[7]	14.4[7]
200	26.8	33.6	40	25	4.1[7]	16.0[7]
229[5]	35.7	44.6	44	28	4.5[7]	16.0[7]

R4-4w / R3-3w / R2-2w Min. $ØD_S$ = 250 mm

$\dot{V}$	P_{st}	P_t	$L_{W(A)}$	$L_{P(A)}$ [1]	C_{min} [2]	C_{max} [2]
L/s	Pa	Pa	dB(A)	NC	m	m
54[3]	2.8	3.5	<25	<10	1.9[6]	7.4[6]
60	3.5	4.4	<25	<10	2.2[7]	7.7[7]
80	6.4	8	<25	<10	2.5[7]	9.5[7]
100	10.4	12.9	28	12	2.8[7]	11.2[7]
125	16.9	20.8	33	18	3.1[7]	13.4[7]
150	25	30.6	38	22	3.5[7]	15.5[7]
179[5]	36.5	44.5	42	26	3.9[7]	16.0[7]

R5-4w / R4-3w / R3-2w Min. $ØD_S$ = 225 mm

$\dot{V}$	P_{st}	P_t	$L_{W(A)}$	$L_{P(A)}$ [1]	C_{min} [2]	C_{max} [2]
L/s	Pa	Pa	dB(A)	NC	m	m
45[3]	4.2	5	<25	<10	1.7[6]	6.7[6]
50[4]	5.1	6.1	<25	<10	2.0[7]	7.1[7]
60	7.2	8.5	<25	<10	2.1[7]	8.0[7]
80	12.2	14.6	28	12	2.5[7]	10.0[7]
100	18.4	22.2	34	18	2.8[7]	11.9[7]
120	25.7	31.2	38	22	3.1[7]	13.8[7]
145[5]	36.4	44.4	43	27	3.6[7]	16.0[7]

Key:

R0 = No reducer
R1 to R6 = reducers 1 to 6
4w = 4-way blow; 3w = 3-way blow; 2w = 2-way blow

Notes:

1) Based on 10 dB room absorption per diffuser.
2) Centre-line distance between diffusers, based on 2.7 to 4 m discharge height & ADPI ≥ 90%.
3) Minimum airflow rate @ ΔTsupply-room = -12 K.
4) Minimum airflow rate @ ΔTsupply-room = -15 K.
5) Maximum airflow rate for Pt ≤ 45 Pa and Lp ≤ NC30.
6) Diffuser centre-line spacing @ ΔTsupply-room = -12 K for ADPI ≥ 90%.
7) Diffuser centre-line spacing @ ΔTsupply-room = -15 K for ADPI ≥ 90%.

ORDER DETAILS

SD-DN___-___-R__-__-P__-__-__

CONNECTION TYPE:
- 0* = No connection box.
- KF = Thermally insulated foam connection box with magnetic fastener & blanking cap.
- KFR = As for KF plus threaded rod fastener and cap.

SURFACE FINISH:
- 9003* = Face powder coated to RAL 9003 (Signal White).
- _____= Face powder coated to RAL ___ .

FACE FINISH:
- 0* = No perforated face.
- 1 = Perforated face.

DISCHARGE PATTERN:
- 4w* = No blanking segments.
- 3w = 1/4 blanking segment – for diffuser adjacent to wall.
- 2s = 2/4 blanking segments – for diffuser in corridor.
- 2a = 1/2 blanking segment – for diffuser in corner.

REDUCER:
- 0* = No reducer
- 1 – 6 = Reducers 1 to 6 for size DN355.
- 1 – 5 = Reducers 1 to 5 for size DN500.

FACE SHAPE:
- S*= Square face with 90° turn-up for coffered ceilings:
  - □ 295 mm* for size DN250;
  - □ 595 mm* (445 mm to 595 mm available) for size DN350;
  - □ 595 mm* for size DN500.
- C = Circular face with flush contact edge (4 mm / 30°) for closed false ceilings:
  - Ø 270 mm* for size DN200;
  - Ø 335 mm* for size DN250;
  - Ø 470 mm* for size DN350;
  - Ø 675 mm* for size DN500.

NECK DIAMETER:
- DN200 = Nominal neck diameter 200 mm.
- DN250 = Nominal neck diameter 250 mm.
- DN350 = Nominal neck diameter 350 mm.
- DN500 = Nominal neck diameter 500 mm.

MODEL:
- Harmony Swirl Diffuser

Note: * Standard, if no type code entered.
Products supplied may differ slightly from those described in this technical brochure due to on-going product development.