Swirl Diffusers
SWD

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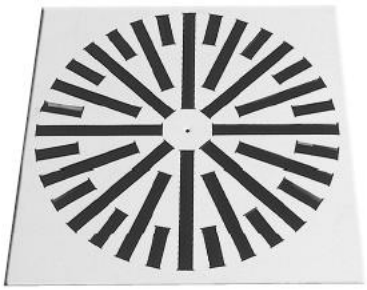
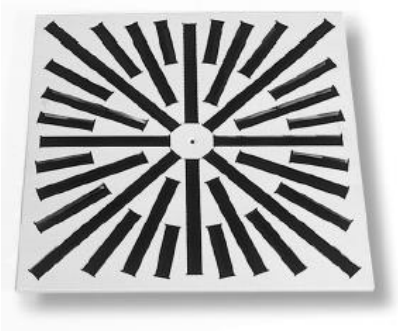
SWD124



SWD224



SWD324

DESCRIPTION:

Ceiling swirl diffusers in air conditioning systems create a swirl to supply air to rooms. The resulting airflow induces high levels of room air, thereby rapidly reducing the airflow velocity and the temperature difference between supply air and room air. Ceiling swirl diffusers allow for large volume flow rates. The result is a mixed flow ventilation in comfort zones, with good overall room ventilation, creating only very little turbulence in the occupied zone.

SWD124 : Swirl diffuser with adjustable and circular arranged blades and circular front plate

SWD224 : Swirl diffuser with adjustable and circular arranged blades and square front plate

SWD324 : Swirl diffuser with fixed and square arranged blades and square front plate

MATERIAL :

Sheet metal front plate and plastic blades

FUNCTION :

SWD series swirl diffuser, type is used for the supply and return of cooled and heated air in facilities such as office, shops, meeting room, cinemas, and with height between 2.60m and 4.00m.And with special arrangement of blades it is possible to use heights upto 6m. The air pattern can be adjusted to meet different local requirements. Horizontal air discharge is one-way, two-way or omni directional. Vertical air discharge is possible but only for heating. The supply air to room air temperature difference may range from –14K to +12 K.

FINISHING :

- Powder coated in RAL9010 colour as standard.
- Other colours on request

INSTALLATION :

- Bridge (standart)
- No Fixing

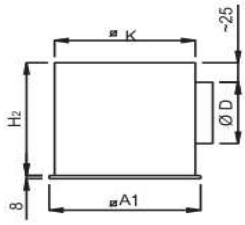
ACCESSORIES:

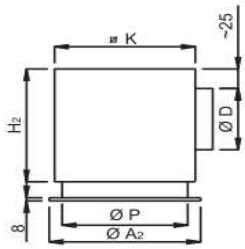
- Plenum box

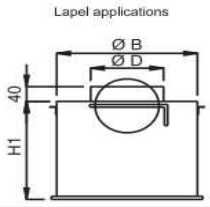
STANDARD SIZES (mm):

SWD 124 STANDARD SELECTION TABLE /

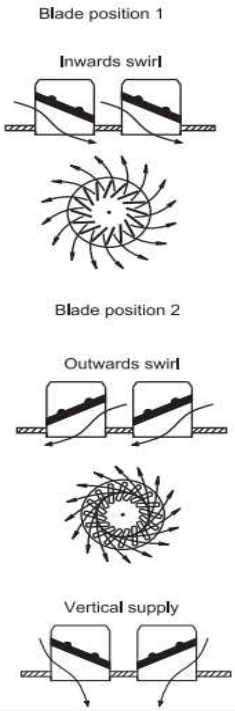
Standard size	A1	A2	B	D	H1	H_2	P	K
300 / 8	298	300	280	158	200	250	278	290
400 / 16	398	400	364	198	200	295	362	372
500 / 24	498	500	462	198	200	295	460	476
600 / 24	598	600	559	248	200	345	557	567
600 / 48	598	600	580	248	300	345	578	590
825 / 72	825		796	313	300	410		806

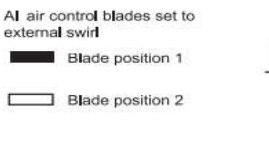


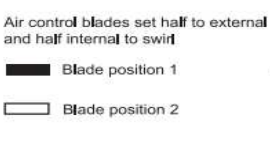


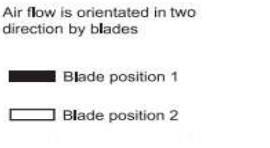


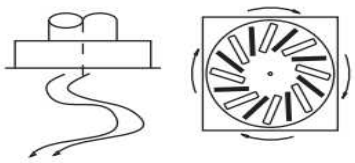
Lapel applications

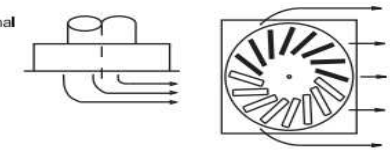


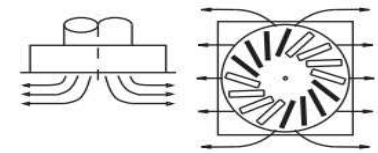




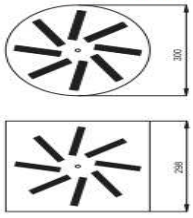




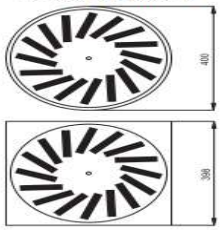




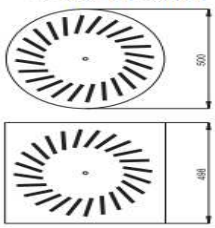
SWD-124 300/8



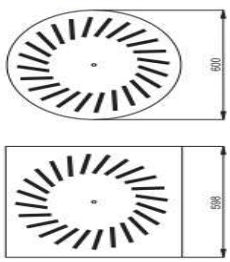
SWD-124 400/16



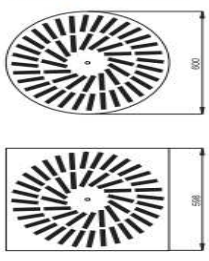
SWD-124 500/24



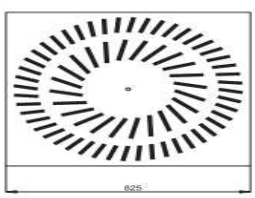
SWD-124 600/24



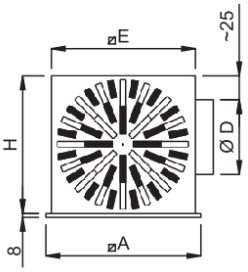
SWD-124 600/48



SWD-124 825/72

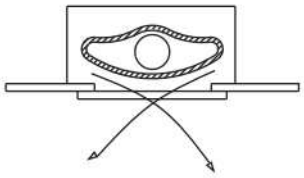


SWD-224 STANDARD SELECTION TABLE



Standard size	A	E	H	D	(Vmin-Vmax) Air Volume (m³/h)	V(volume) 40db A
310	308	290	260	158	155-410	280
400	398	370	260	158	170-490	330
500	498	470	300	198	300-960	540
600	598	570	350	248	410-1430	810
625	623	570	350	248	410-1430	810
800	798	770	455	353	610-2600	1200

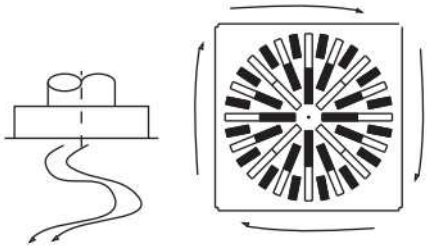
Blade position 1



All air control blades set to external swirl

Blade position 1

Blade position 2

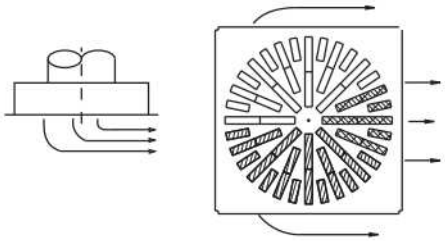


Air flow is orientated in one direction by blades

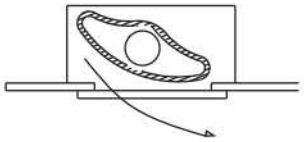
Blade position 2, Left

Blade position 2, Right

Closed



Blade position 2

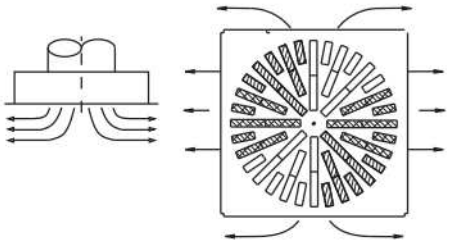


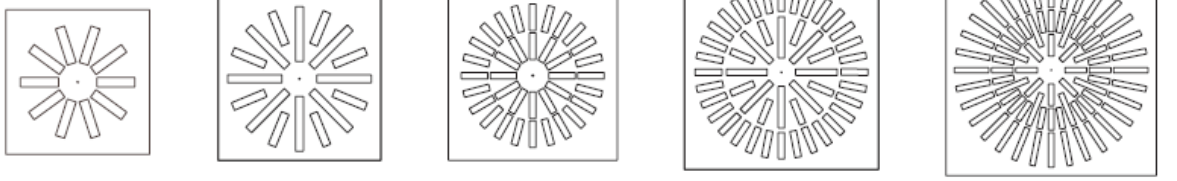
Air flow is orientated in two direction by blades.

Blade position 2, Left

Blade position 2, Right

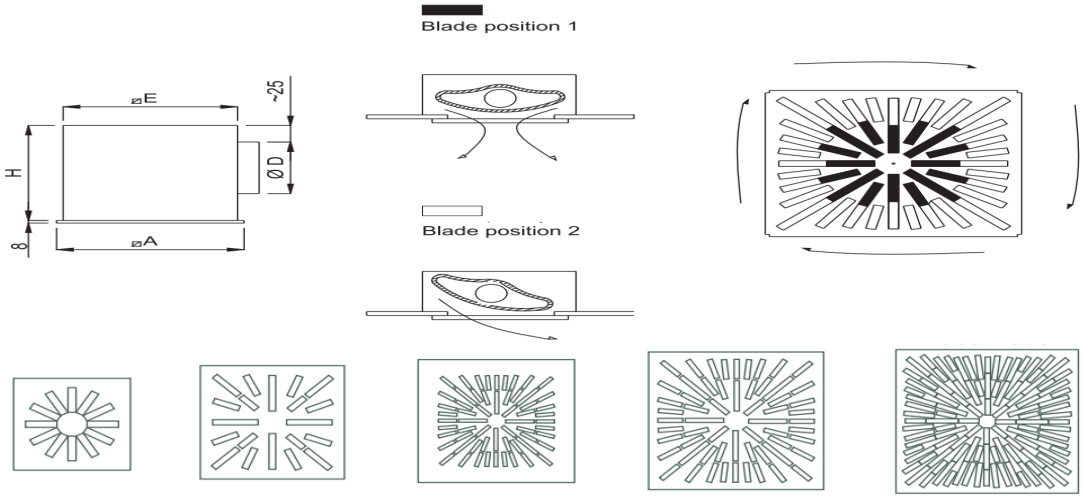
Closed



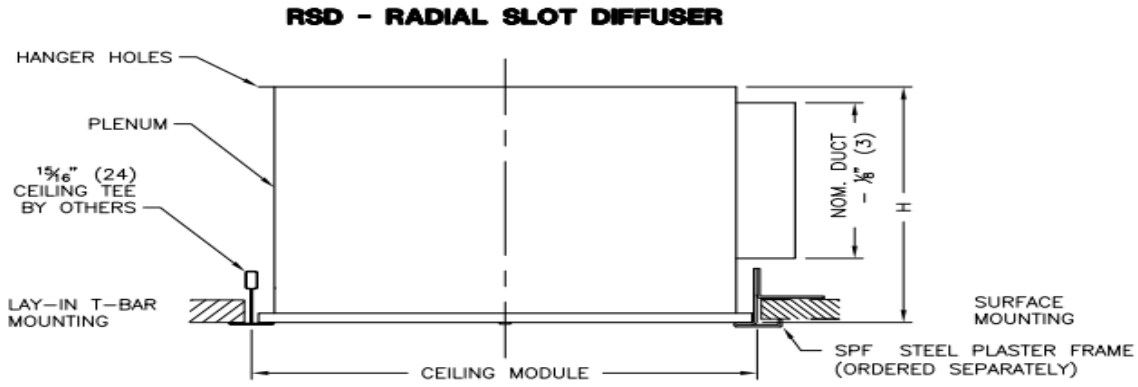


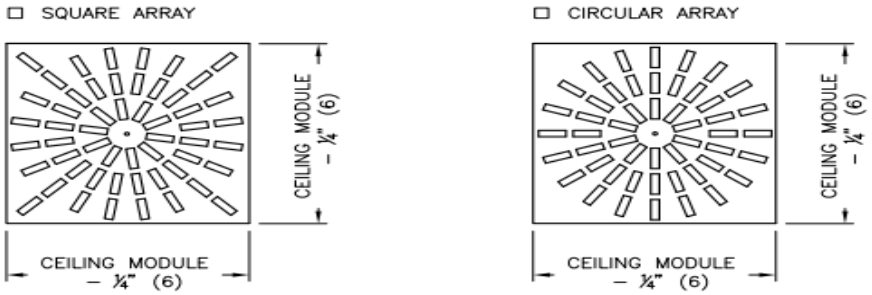
SWD-324 STANDARD SELECTION TABLE

Standard size	A	E	H	D	(Vmin-Vmax) Air Volume (m³/h)	Vr(volume) 10db(A
310	308	290	260	158	160-420	290
400	398	370	260	158	170-510	345
500	498	470	300	198	370-1160	650
600	598	570	350	248	420-1600	890
625	623	570	350	248	420-1600	890
800	798	770	455	353	620-3060	1420



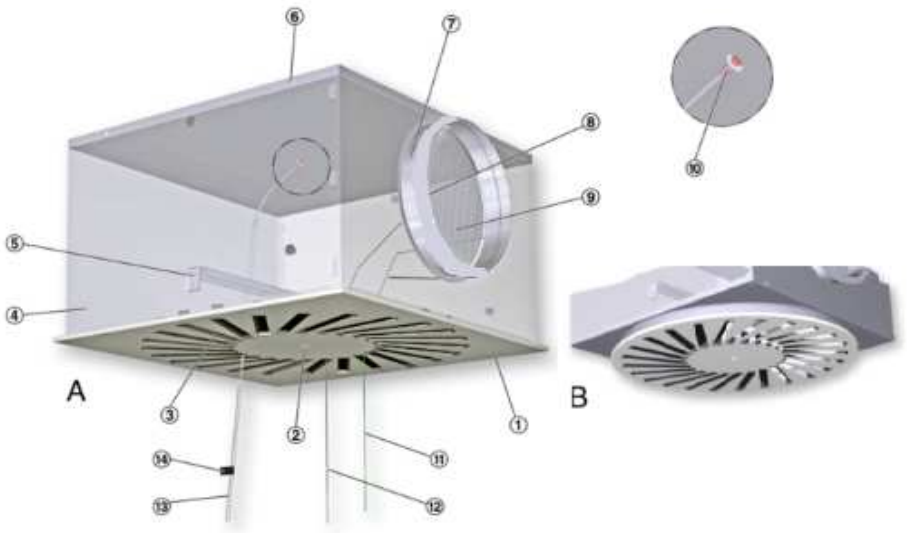
Imperial System





CEILING MODULE	NOM. DUCT	H
24" X 24"	8" , 10" , 12"	14"
(600 x 600)	(203 , 254, 305)	(356)

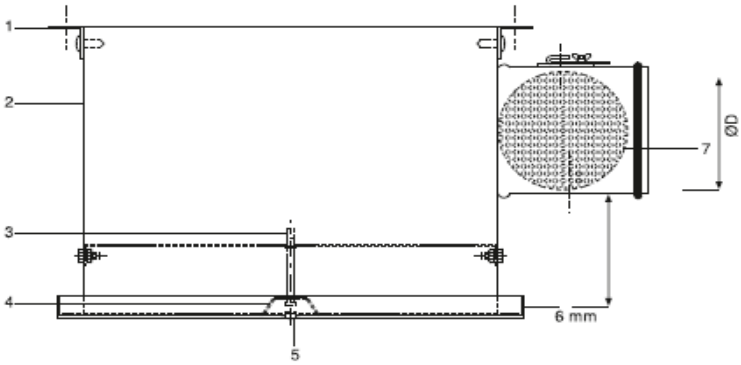
SWD124 Plenum Box Details:



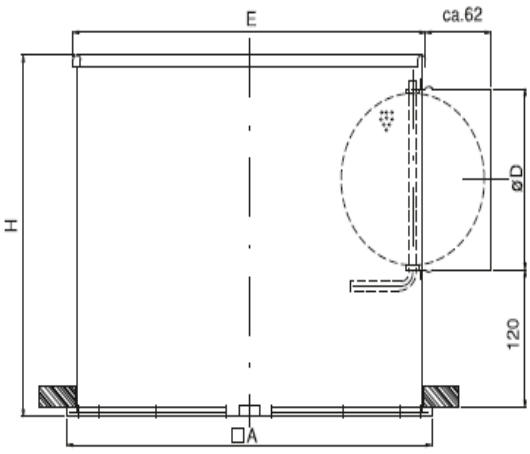
SWD124 A: Square front plate **SWD124 B: Circular front plate**

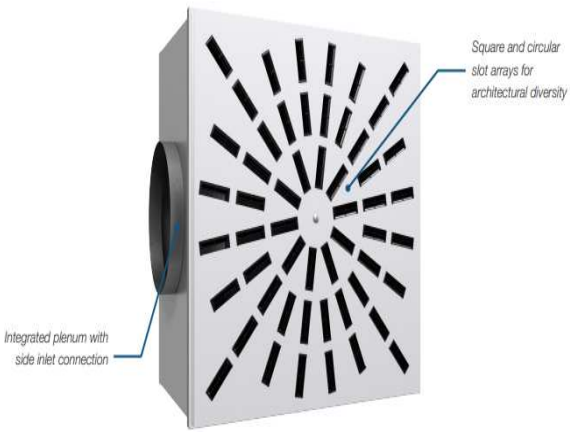
① Diffuser face
② Central fixing screw
③ Adjustable air control blades
④ Plenum box
⑤ Cross bar (bridge)
⑥ Suspension hole
⑦ Spigot Optional
⑧ Lip seal Optional
⑨ Damper blade for volume flow rate balancing-Optional
⑩ Pressure tap - Optional
⑪ Green cord for closing the damper blade
⑫ White cord for opening the damper blade
⑬ Measuring tube
⑭ Text label indicating plenum box variant

SWD224/324 Plenum Box Details:



1-Hook pieces
2-Plenum box
3-Screw
4-Installation bridge
5-Plastic cap
6-Swril diffuser
7-Air control damper
8-Air control damper





SWD124 SELECTION TABLE

Nominal sizes	300, 400, 500, 600, 625, 825 mm
Minimum volume flow rate, with Δt_z = –6 K	7 – 99 l/s or 25 – 357 m³/h
Maximum volume flow rate, with L_{WA} ≤ 50 dB(A)	80 – 470 l/s or 288 – 1692 m³/h
Supply air to room air temperature difference	–12 to +10 K

Nominal size	$\dot{V}$	$\dot{V}$	Damper blade position					
			0°		45°		90°	
			Δp_t	L_{WA}	Δp_t	L_{WA}	Δp_t	L_{WA}
	l/s	m³/h	Pa	dB(A)	Pa	dB(A)	Pa	dB(A)
300 × 8	7	26	1	<15	1	<15	1	<15
	35	126	15	23	18	22	30	24
	60	216	45	39	53	38	87	40
	85	306	91	50	105	50	174	51
400 × 16	13	46	1	<15	1	<15	1	<15
	60	216	13	22	15	23	28	25
	100	360	36	38	42	39	78	42
	140	504	71	50	83	50	154	54
500 × 24	19	70	1	<15	1	<15	3	<15
	70	252	11	19	14	19	34	24
	125	450	35	38	45	37	108	42
	175	630	68	50	89	49	212	54
600 × 24, 625 × 24	28	102	1	<15	1	<15	2	<15
	105	378	11	20	15	21	33	22
	165	594	26	34	37	34	83	36
	260	936	65	50	91	51	205	55
600 × 48	40	145	1	<15	2	<15	5	<15
	130	468	12	21	18	23	50	29
	210	756	32	37	47	40	131	45
	305	1098	67	50	98	55	276	60
625 × 54	52	186	2	<15	2	<15	7	<15
	140	504	13	22	16	24	48	33
	225	810	34	38	41	39	125	51
	310	1116	64	50	77	52	238	64
825 × 72	99	357	2	<15	4	<15	10	<15
	225	810	13	24	21	27	51	33
	400	1440	41	44	65	49	161	54
	470	1692	56	50	90	57	222	61

- Selection tables provide a good overview of the volume flow rates and corresponding sound power levels and differential pressures.
- The minimum volume flow rates apply to a supply air to room air temperature difference of –6 K.
- The maximum volume flow rates apply to a sound power level of approx. 50 dB (A) with damper blade position 0°.

SWD224 SELECTION TABLE

Q_v (m^3/h)	MODEL	310	400	500	600	800
200	Lt (m)	1,1				
	Vt (m/s)	0,2				
	NR	27				
	P (Pa)	25				
300	Lt (m)	1,8	1			
	Vt (m/s)	0,2	0,2			
	NR	37	33			
	P (Pa)	50	40			
400	Lt (m)	2,8	1,5			
	Vt (m/s)	0,2	0,2			
	NR	42	40			
	P (Pa)	80	70			
500	Lt (m)	2	2,5	1,5		
	Vt (m/s)	0,25	0,2	0,2		
	NR	50	45	35		
	P (Pa)	140	110	30		
600	Lt (m)			2	1,5	
	Vt (m/s)			0,2	0,2	
	NR			37	35	
	P (Pa)			40	30	
800	Lt (m)			2,5	2	
	Vt (m/s)			0,2	0,2	
	NR			45	35	
	P (Pa)			70	38	
1000	Lt (m)			2,5	1,5	1,8
	Vt (m/s)			0,25	0,25	0,2
	NR			50	40	30
	P (Pa)			100	50	20
1500	Lt (m)				3	3
	Vt (m/s)				0,3	0,2
	NR				45	40
	P (Pa)				80	40
2000	Lt (m)					4
	Vt (m/s)					0,2
	NR					47
	P (Pa)					80
2500	Lt (m)					4
	Vt (m/s)					0,25
	NR					52
	P (Pa)					100

SELECTION CRITERIAS

$L=L_t+H_1$

H_1=1,2mt

Ceiling height 3m

Ceiling effect

Louvers Position "B"

Lt(m) : Throw Distance
NR : Sound Level
Pt(Pa) : Pressure Drop
Vk(m/s): Slot Output Speed

SWD324 SELECTION TABLE

Q_v (m^3/h)	MODEL	310	400	500	600	800
200	Lt (m)	1				
	Vt (m/s)	0,2				
	NR	25				
	P (Pa)	22				
300	Lt (m)	2	1,2			
	Vt (m/s)	0,2	0,2			
	NR	35	33			
	P (Pa)	45	40			
400	Lt (m)	3	2			
	Vt (m/s)	0,2	0,2			
	NR	45	40			
	P (Pa)	90	65			
500	Lt (m)	3	2,5	1,3		
	Vt (m/s)	0,25	0,2	0,2		
	NR	50	45	30		
	P (Pa)	140	100	19		
600	Lt (m)			2	1,5	
	Vt (m/s)			0,2	0,2	
	NR			35	25	
	P (Pa)			28	18	
800	Lt (m)			2,5	2	
	Vt (m/s)			0,2	0,2	
	NR			40	35	
	P (Pa)			45	35	
1000	Lt (m)			3	3	1,5
	Vt (m/s)			0,2	0,2	0,2
	NR			45	40	25
	P (Pa)			65	50	15
1500	Lt (m)				4	2,5
	Vt (m/s)				0,2	0,2
	NR				50	35
	P (Pa)				100	30
2000	Lt (m)					3,5
	Vt (m/s)					0,2
	NR					43
	P (Pa)					55
2500	Lt (m)					4,5
	Vt (m/s)					0,2
	NR					50
	P (Pa)					80

SELECTION CRITERIAS

$L=L_t+H_1$

$H_1=1,2mt$

Ceiling height 3m

Ceiling effect

Louvre Positions "B"

Lt(m) : Throw Distance
NR : Sound Level
Pt(Pa) : Pressure Drop
Vk(m/s): Slot Output Speed

imperial System

RSD RADIAL SLOT DIFFUSER

12 in. x 12 in. - Circular Array

Inlet Size	Neck Velocity (fpm) / Velocity Pressure (in. w.g.)	200 / 0.002	300 / 0.006	400 / 0.010	500 / 0.016	600 / 0.022	700 / 0.031	800 / 0.040	900 / 0.050	1000 / 0.062	1200 / 0.090
6"ø	Static Pressure (in. w.g.)	0.014	0.029	0.048	0.071	0.098	0.128	0.163	0.200	0.241	0.333
	Flow Rate (cfm)	39	59	79	98	118	137	157	177	196	236
	Sound (NC)	-	-	-	18	23	27	30	33	36	41
	Throw (ft.)	0 - 1 - 2	1 - 1 - 3	1 - 2 - 4	2 - 3 - 6	2 - 3 - 7	3 - 4 - 7	3 - 4 - 8	3 - 5 - 8	4 - 6 - 9	4 - 7 - 10

24 in. x 24 in. - Circular Array

Inlet Size	Neck Velocity (fpm) / Velocity Pressure (in. w.g.)	200 / 0.002	300 / 0.006	400 / 0.010	500 / 0.016	600 / 0.022	700 / 0.031	800 / 0.040	900 / 0.050	1000 / 0.062	1200 / 0.090
8"ø	Static Pressure (in. w.g.)	0.006	0.013	0.022	0.032	0.045	0.059	0.075	0.093	0.112	0.155
	Flow Rate (cfm)	70	105	140	175	209	244	279	314	349	419
	Sound (NC)	-	-	-	-	16	21	25	28	31	36
	Throw (ft.)	1-1-2	1-2-3	1-2-4	2-3-6	2-3-7	3-4-8	3-4-9	3-5-10	4-6-11	4-7-12
10"ø	Static Pressure (in. w.g.)	0.013	0.027	0.045	0.067	0.092	0.122	0.155	0.191	0.231	
	Flow Rate (cfm)	109	164	218	273	327	382	436	491	545	
	Sound (NC)	-	-	18	24	29	33	37	41	44	
	Throw (ft.)	1-2-3	2-3-5	2-3-7	3-4-9	3-5-10	4-6-11	5-7-12	5-8-13	6-9-14	
12"ø	Static Pressure (in. w.g.)	0.025	0.052	0.086	0.129	0.178	0.235	0.298			
	Flow Rate (cfm)	157	236	314	393	471	550	628			
	Sound (NC)	-	20	28	34	39	44	48			
	Throw (ft.)	2-3-5	3-4-8	3-5-10	4-6-11	5-8-13	6-9-14	7-10-15			

24 in. x 24 in. - Square Array

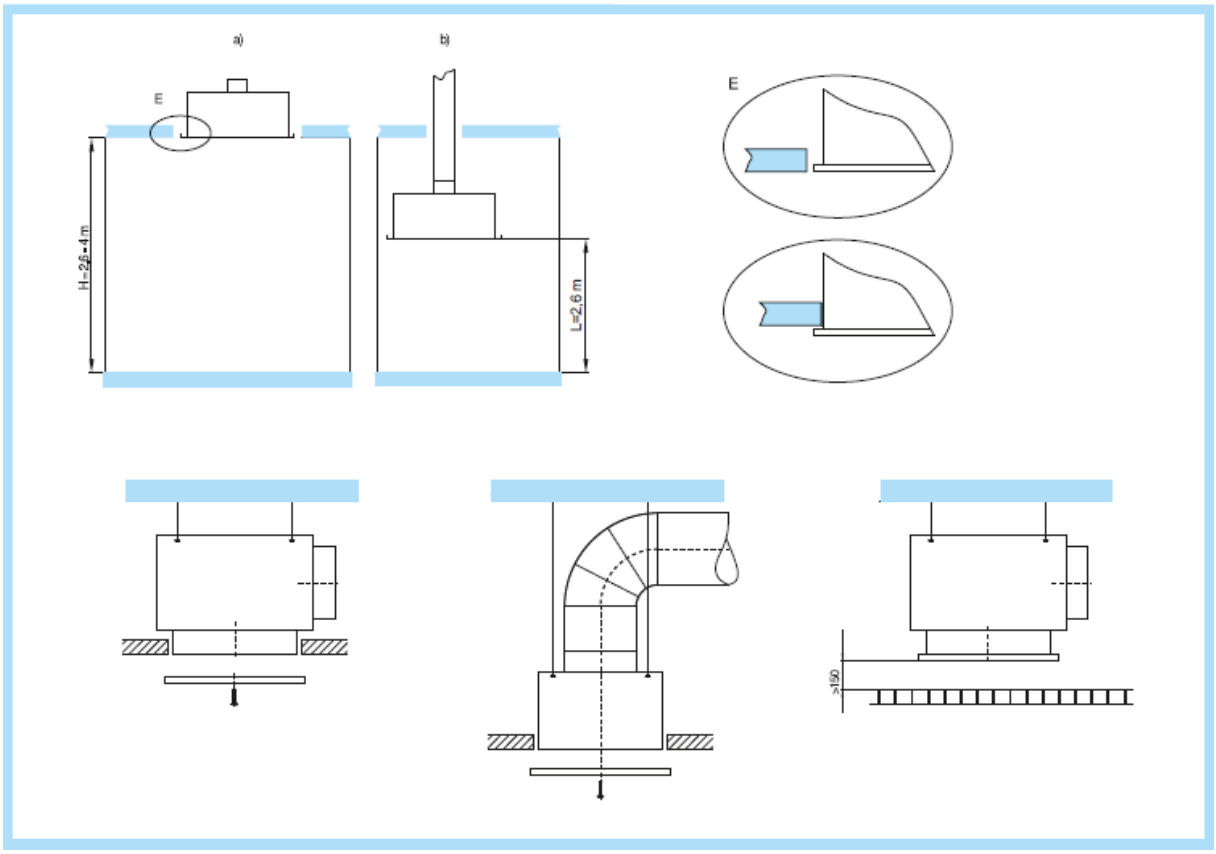
Inlet Size	Neck Velocity (fpm) / Velocity Pressure (in. w.g.)	200 / 0.002	300 / 0.006	400 / 0.010	500 / 0.016	600 / 0.022	700 / 0.031	800 / 0.040	900 / 0.050	1000 / 0.062	1200 / 0.090
8"ø	Static Pressure (in. w.g.)	0.006	0.013	0.021	0.030	0.041	0.054	0.067	0.083	0.099	0.135
	Flow Rate (cfm)	70	105	140	175	209	244	279	314	349	419
	Sound (NC)	-	-	-	-	17	21	25	28	31	36
	Throw (ft.)	0-0-2	0-1-3	1-2-4	1-2-6	2-3-7	2-4-8	3-4-9	3-5-10	4-6-11	4-7-13
10"ø	Static Pressure (in. w.g.)	0.011	0.022	0.038	0.057	0.079	0.105	0.134	0.167	0.202	
	Flow Rate (cfm)	109	164	218	273	327	382	436	491	545	
	Sound (NC)	-	-	18	24	29	34	37	41	44	
	Throw (ft.)	0-1-3	1-2-5	2-3-7	3-4-9	3-5-10	4-6-12	5-7-13	5-8-14	6-9-15	
12"ø	Static Pressure (in. w.g.)	0.026	0.053	0.089	0.132	0.182	0.239	0.303			
	Flow Rate (cfm)	157	236	314	393	471	550	628			
	Sound (NC)	-	20	28	34	39	44	48			
	Throw (ft.)	1-2-5	2-4-8	3-5-10	4-6-12	5-8-14	6-9-15	7-10-16			

Performance Notes:

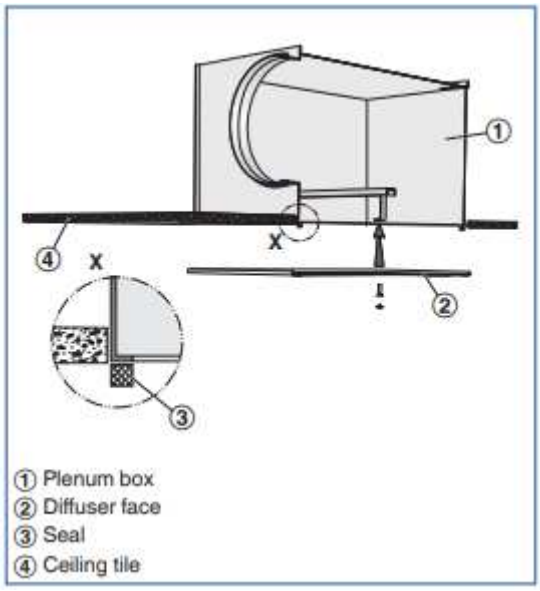
1. Tested in accordance with ASHRAE Standard 70 - 2006 “Method of Testing for Rating the Performance of Air, Outlets and Inlets.
2. Airflow is in cubic feet per minute [cfm].
3. NC, sound pressure levels, are based on a room absorption of 10 dB re 10-12 Watts, and a single diffuser/grille.
4. Blanks “-“ indicate an NC level below 15.
5. All pressures are in inches of water column [in. w.g.].
6. Pressures not listed can be calculated using the following formula: Ptotal = Pstatic + Pvelocity
7. Throw data is based on supply air and room air being at isothermal conditions
8. Throw data is given in feet [ft] to terminal velocities of

- 150 fpm (minimum)
- 100 fpm (middle)
- 50 fpm (maximum)

INSTALLATION DETAILS:

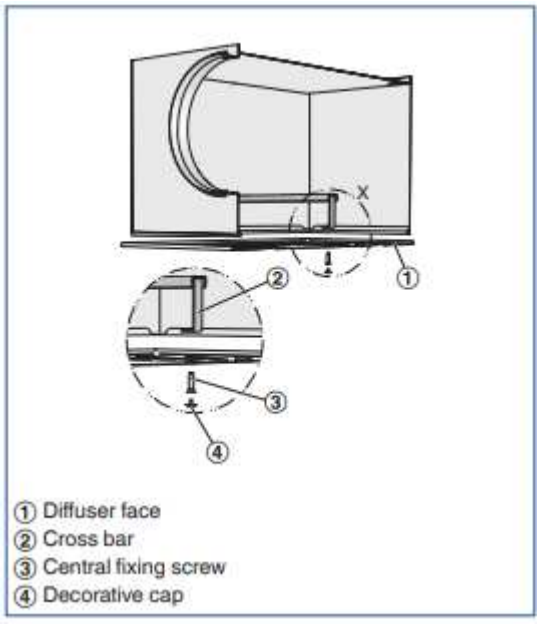


Diffuser face – sealing



– The self-adhesive sealing tape (supplied) has to be applied to the return edges of the plenum box by others

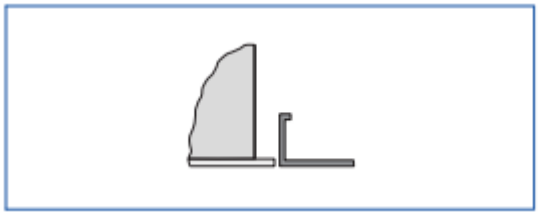
Diffuser face – central screw fixing



- Using the central fixing screw, fix the diffuser face to the cross bar of the plenum box
- Attach the decorative cap

Ceiling systems

Installation into grid ceilings

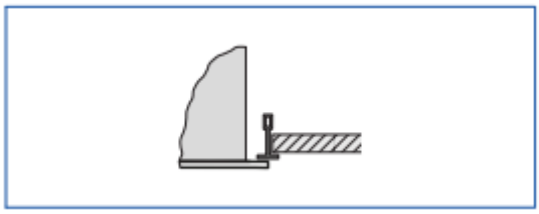


– Fix the plenum box to the ceiling
– The ceiling tile of the grid ceiling is independent of the ceiling diffuser
– Fix the diffuser face after the ceiling has been completed

Installation in continuous ceilings

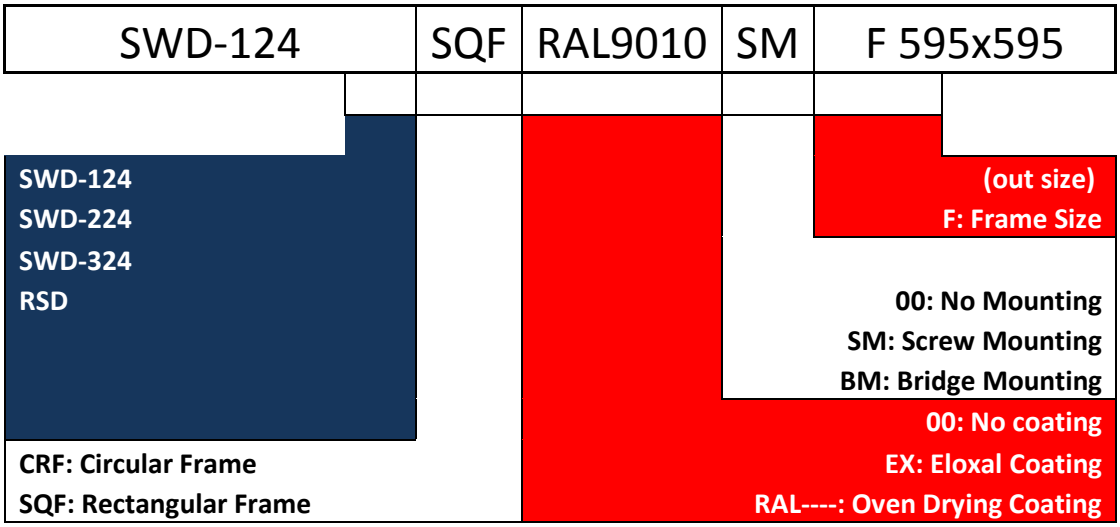
– Fix plenum box (including diffuser face, if necessary) to the ceiling
– Adjust plasterboard ceiling tile as required
– If necessary, fix the diffuser face after the ceiling has been completed

Installation in T-bar ceilings



- Fix the plenum box to the ceiling
- The T-bar ceiling is independent of the ceiling diffuser
- Fix the diffuser face below the T-bars after the ceiling has been completed

ORDER CODES


SWD-124
SQF
RAL9010
SM
F 595x595
SWD-124
SWD-224
SWD-324
RSD
(out size)
F: Frame Size
00: No Mounting
SM: Screw Mounting
BM: Bridge Mounting
00: No coating
EX: Eloxal Coating
RAL----: Oven Drying Coating
CRF: Circular Frame
SQF: Rectangular Frame