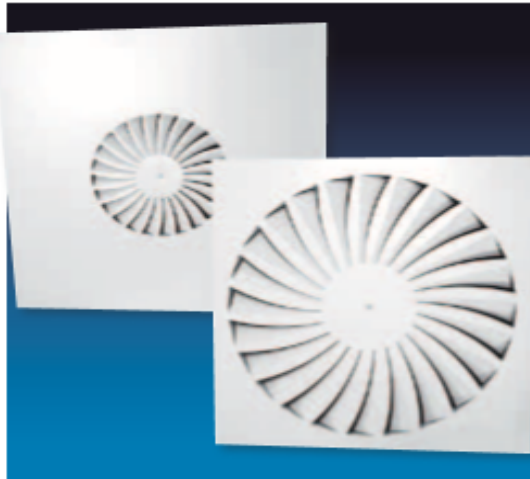


**SQUARE SWIRL DIFFUSERS**

*Model PSB*

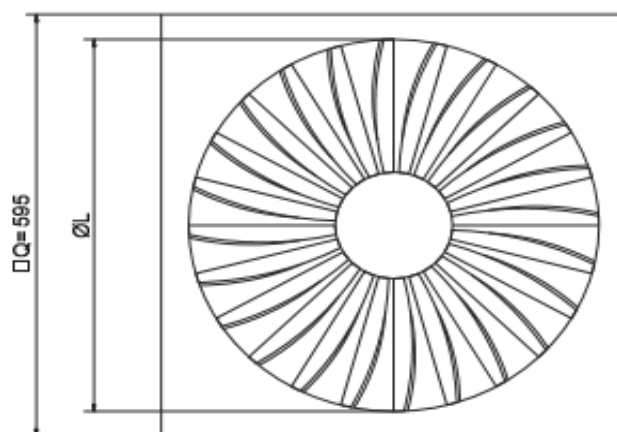
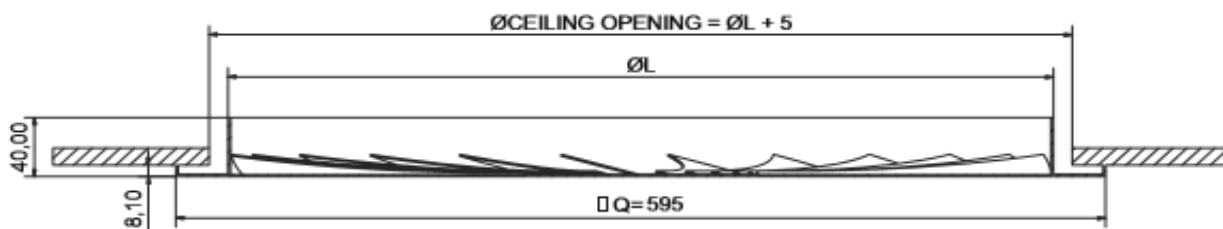


The Polyaire PSB Swirl Diffuser has fixed spiral blades that create rotational as well as axial, tangential and radial air movement. This means that it produces a strong horizontal swirl, obtaining high inductivity, to allow the introduced flow to rapidly mix with the ambient air to reduce temperature and also perceived drafts or hot/cold spots.

Velocity is reduced while still maintaining volume and reduced noise and this product is ideally suited to handling large volumes. The PSB maintains high quality air diffusion throughout the space with minimal temperature variation. The Swirl effects ensure good mixing of supply and ambient air.

The PSB is also suitable for return air application due to low pressure drop across the grille. The standard PSB is made of cold rolled galvanized plate steel powder coated white (RAL9010) Other finishes are available to suit the interior and architectural design requirements. The face plate is 595mm square and suitable for surface mounting in the ceiling or alternatively as a lay-in for T-Bar ceiling installations.

Sizes Available/Dimensions			
Item Number	Face size/ Neck size	Q	L
247094	PSB Q 595/254	595	254
247095	PSB Q 595/336	595	336
247096	PSB Q 595/440	595	440
247097	PSB Q 595/530	595	530

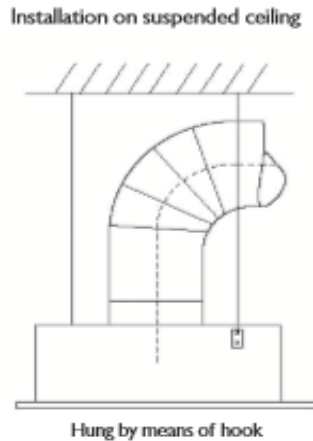
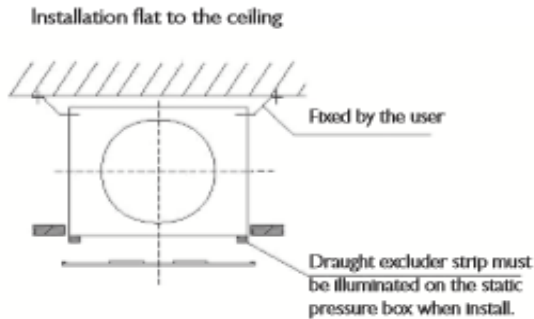


## PSB Type Swirl Diffusers

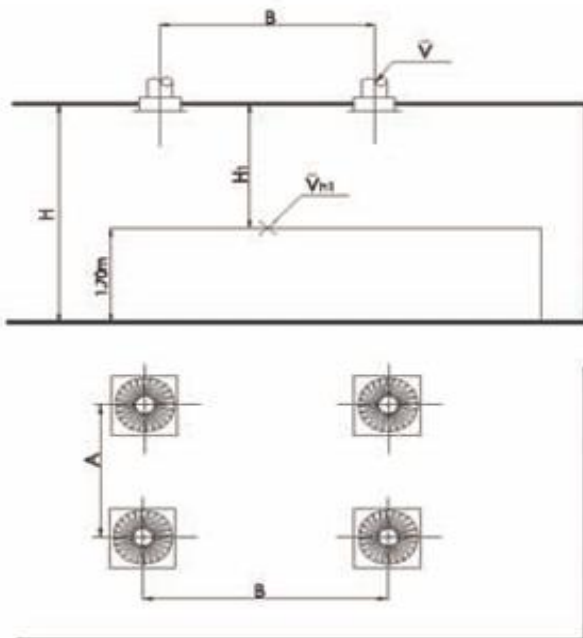
### 4) Installations

Installation flat to the ceiling is applicable to all types.

Min. 2.6m from the bottom edge of the installation surface to the floor



### 5) Symbol Definitions



$\nabla(\text{m}^3/\text{h})$	Blast volume of every air port
A, B (m)	Distance between diffusers
$\nabla_{h1}(\text{m}/\text{s})$	Average air velocity between the two air ports at Height $H_1$
$H_1(\text{m})$	Distance from the ceiling to the activity area
$\Delta PT(\text{Pa})$	Total pressure loss (air blowing)
H(m)	Installation height
$L_{wa}(\text{dB}<A>)$	A sound power level noise

## PSB Type Swirl Diffusers

### 6) Quick Selection

Specs	Air Volume (m <sup>3</sup> /h)	Pressure Loss (Pa)	Noise (dB)
254	100	6.5	<20
	150	13	24
	250	35	37
	400	90	53
	500	140	65
336	150	4.5	<20
	200	9	<20
	300	18	28
	400	36	38
	500	50	44
440	180	4.5	<20
	250	8	<20
	350	15	27
	550	38	42
	700	60	47
530	300	6	<20
	400	10	22
	600	20	32
	800	38	42
	1200	85	55

### AIR RETURN

Specs	Air Volume (m <sup>3</sup> /h)	Pressure Loss (Pa)	Noise (dB)
254	150	18	26
	200	35	33
	300	80	42
	400	145	55
336/440	200	8	22
	300	16	33
	400	30	42
	500	45	46
	700	80	55
530	200	5.5	<20
	300	13	20
	400	22	27
	500	35	35
	700	60	43

## PSB Type Swirl Diffusers

### 7) Performance Data

		254 neck size - single or multiple lines B = 4.0m						
		Air volume (m <sup>3</sup> /h)	110	145	180	215	250	325
Height H <sub>c</sub> (m)	Air Velocity V <sub>0</sub> (m/s)	Distance between diffusers A (m)						
	0.9	0.1	-	4.0	4.5	5.3	5.7	6.0
0.15		-	-	3.7	4.4	5.0	5.6	
0.2		-	-	-	-	4.2	5.0	
0.25		-	-	-	-	-	4.5	
1.2	0.1	-	-	3.8	4.6	5.3	5.7	
	0.15	-	-	-	-	4.1	4.9	
	0.2	-	-	-	-	-	4.0	
1.6	0.1	-	-	-	3.0	4.4	5.2	
	0.15	-	-	-	-	-	4.0	
2.0	0.1	-	-	-	-	3.0	4.6	

## PSB Type Swirl Diffusers

### Performance Data

254 neck size - Multiple lines B = 3.0m							
Height H(m)	Air Velocity $V_m(m/s)$	Air volume (m <sup>3</sup> /h)					
		110	145	180	215	250	325
Distance between diffusers A (m)							
0.9	0.1	3.4	4.0	4.3	4.9	5.4	5.9
	0.15	-	3.3	3.7	4.4	4.7	5.5
	0.2	-	-	3.2	3.8	4.3	4.9
	0.25	-	-	-	3.4	3.8	4.5
	0.3	-	-	-	-	3.4	4.2
1.2	0.1	-	3.5	3.9	4.6	4.9	5.6
	0.15	-	-	3.2	3.8	4.3	4.9
	0.2	-	-	-	-	3.6	4.4
	0.25	-	-	-	-	-	3.8
	0.3	-	-	-	-	4.4	3.3
1.6	0.1	-	-	3.4	4.0	3.7	5.2
	0.15	-	-	-	3.0	-	4.3
	0.2	-	-	3.0	-	-	3.7
2.0	0.1	-	-	-	3.7	4.3	4.8
	0.15	-	-	-	-	3.0	3.9
	0.2	-	-	-	-	-	3.0

254 neck size - Quadrangle Alignment A=B							
Height H(m)	Air Velocity $V_m(m/s)$	Air volume (m <sup>3</sup> /h)					
		110	145	180	215	250	325
Distance between diffusers A (m)							
0.9	0.15	2.5	3.4	3.9	4.4	4.7	5.2
	0.2	2.0	2.8	3.4	3.8	4.2	4.9
	0.25	1.65	2.2	2.8	3.3	3.6	4.2
	0.3	1.3	1.7	2.4	2.8	3.2	3.6
	0.4	1.1	1.4	1.7	2.2	2.6	3.2
	0.5	0.95	1.2	1.5	1.8	2.2	2.8
1.2	0.15	2.0	2.8	3.3	3.7	4.1	4.8
	0.2	1.5	2.1	2.7	3.1	3.5	4.0
	0.25	1.25	1.75	2.2	2.6	3.0	3.6
	0.3	1.05	1.40	1.8	2.2	2.4	3.0
	0.4	0.85	1.1	1.4	1.6	2.0	2.7
	0.5	-	0.95	1.15	1.3	1.7	2.2
1.6	0.15	1.5	2.05	2.7	3.0	3.4	4.0
	0.2	1.2	1.57	2.2	2.5	2.7	3.5
	0.25	1.0	1.35	1.75	1.95	2.5	3.1
	0.3	0.8	1.15	1.45	1.70	2.0	2.6
	0.4	-	0.95	1.1	1.35	1.55	2.0
	0.5	-	-	0.8	1.0	1.15	1.35
2.0	0.15	1.2	1.7	2.1	2.5	2.9	3.5
	0.2	1.0	1.25	1.75	2.0	2.4	3.0
	0.25	0.8	1.1	1.45	1.75	2.0	2.6
	0.3	-	0.95	1.15	1.3	1.7	2.0
	0.4	-	-	0.95	1.05	1.35	1.65
	0.5	-	-	0.8	0.95	1.1	1.35

## PSB Type Swirl Diffusers

### Performance Data

336 neck size - single or multiple lines B = 4.0m							
Height H(m)	Air Velocity $V_{10}(m/s)$	Air volume (m <sup>3</sup> /h)	215	290	360	450	540
		Distance between diffusers A (m)					
0.9	0.1	5.4	6.0	-	-	-	-
	0.15	-	5.2	5.8	-	-	-
	0.2	-	4.3	5.0	5.7	6.0	-
	0.25	-	-	4.2	5.0	5.7	-
	0.3	4.4	-	3.0	4.6	5.3	-
1.2	0.1	-	5.2	5.8	-	-	-
	0.15	-	4.4	5.0	5.7	6.0	-
	0.2	-	-	4.5	5.1	5.6	-
	0.25	-	-	-	4.3	5.0	-
	0.3	-	-	-	-	4.2	-
1.6	0.1	-	4.6	5.5	5.7	-	-
	0.15	-	-	4.4	5.1	5.7	-
	0.2	-	-	-	5.0	5.7	-
	0.25	-	-	-	-	4.0	-
2.0	0.1	-	3.8	4.7	5.5	6.0	-
	0.15	-	-	-	4.5	4.2	-
	0.2	-	-	-	-	4.0	-

336 neck size - multiple lines B = 3.0m							
Height H(m)	Air Velocity $V_{10}(m/s)$	Air volume (m <sup>3</sup> /h)	215	290	360	450	540
		Distance between diffusers A (m)					
0.9	0.1	4.2	4.5	5.0	5.5	-	-
	0.15	3.5	4.0	4.7	5.2	5.6	-
	0.2	-	3.7	4.2	4.8	5.2	-
	0.25	-	3.4	3.8	4.4	4.8	-
	0.3	-	-	3.5	4.0	4.5	-
1.2	0.1	3.7	4.1	4.7	5.2	5.8	-
	0.15	-	3.7	4.2	4.8	5.2	-
	0.2	-	-	3.7	4.0	4.5	-
	0.25	-	-	5.5	3.9	4.4	-
	0.3	-	-	-	3.5	4.0	-
1.6	0.1	3.3	3.8	4.5	4.8	5.5	-
	0.15	-	3.0	3.8	4.3	4.7	-
	0.2	-	-	3.0	3.8	4.4	-
	0.25	-	-	-	3.2	3.8	-
	0.3	-	-	-	-	3.0	-
2.0	0.1	-	3.6	4.1	4.6	5.0	-
	0.15	-	-	3.5	3.9	4.4	-
	0.2	-	-	-	3.4	3.8	-
	0.25	-	-	-	-	3.5	-

## PSB Type Swirl Diffusers

### Performance Data

336 neck size - Quadrangle Alignment A=B						
Height H(m)	Air Velocity $V_{in}(m/s)$	Air volume (m <sup>3</sup> /h)				
		215	290	360	450	540
Distance between diffusers A (m)						
0.9	0.15	3.6	4.1	4.5	4.9	5.5
	0.2	3.0	3.7	4.0	4.5	5.0
	0.25	2.4	3.2	3.6	4.0	4.7
	0.3	2.0	2.8	3.3	3.8	4.2
	0.4	1.6	2.2	2.7	3.4	3.7
1.2	0.15	3.0	3.7	4.0	4.5	5.0
	0.2	2.2	3.1	3.5	4.0	4.5
	0.25	1.8	2.7	3.2	3.8	4.0
	0.3	1.5	2.2	2.6	3.4	4.6
	0.4	1.25	1.75	2.1	2.6	3.2
1.6	0.15	2.2	3.1	3.5	4.0	4.5
	0.2	1.75	2.5	3.0	3.6	4.0
	0.25	1.5	2.0	2.5	3.1	3.5
	0.3	1.25	1.7	2.2	2.6	3.2
	0.4	0.9	1.35	1.7	2.0	2.6
2.0	0.15	1.85	2.75	3.1	3.7	4.0
	0.2	1.5	2.0	2.5	3.1	3.5
	0.25	1.25	1.65	2.0	2.6	3.2
	0.3	-	1.40	1.75	2.1	2.5
	0.4	-	1.2	1.4	1.75	2.0
	0.5	-	0.95	1.35	1.40	1.75

440 neck size - single or multiple lines B = 4.0m						
Height H(m)	Air Velocity $V_{in}(m/s)$	Air volume (m <sup>3</sup> /h)				
		250	325	450	540	650
Distance between diffusers A (m)						
0.9	0.1	4.2	4.8	5.3	5.7	-
	0.15	-	4.0	5.0	5.5	5.7
	0.2	-	-	4.5	5.0	5.5
	0.25	-	-	-	4.4	5.0
	0.3	-	-	-	-	4.5
1.2	0.1	-	4.4	5.0	5.7	5.8
	0.15	-	-	4.5	5.0	5.5
	0.2	-	-	-	4.1	4.9
1.6	0.25	-	-	-	-	4.1
	0.1	-	-	4.8	5.1	5.7
2.0	0.15	-	-	-	4.1	4.7
	0.1	-	-	4.1	4.7	5.3
	0.15	-	-	-	-	4.1

## PSB Type Swirl Diffusers

### Performance Data

440 neck size - multiple lines B = 3.0m						
Height H(m)	Air velocity V <sub>in</sub> (m/s)	Air volume (m <sup>3</sup> /h)				
		250	325	450	540	650
Distance between diffusers A (m)						
0.9	0.1	4.2	4.6	5.3	5.7	-
	0.15	3.6	4.3	4.6	5.2	5.7
	0.2	-	3.6	4.4	4.7	5.3
	0.25	-	-	3.9	4.5	4.7
1.2	0.1	3.7	4.5	4.7	5.3	5.7
	0.15	-	3.6	4.3	4.8	5.3
	0.2	-	-	-	4.4	4.7
	0.25	-	-	3.8	3.8	4.4
1.6	0.3	-	-	3.5	3.5	4.0
	0.1	3.3	3.9	-	4.9	5.5
	0.15	-	-	4.5	4.3	4.8
	0.2	-	-	3.8	3.8	4.3
2.0	0.25	-	-	3.2	3.0	3.8
	0.3	-	-	-	-	3.3
	0.1	-	3.5	4.2	5.7	6.1
	0.15	-	-	3.4	3.8	4.5
2.0	0.2	-	-	-	3.0	3.7
	0.25	-	-	-	-	3.0

440 neck size - Quadrangle Alignment A=B						
Height H(m)	Air velocity V <sub>in</sub> (m/s)	Air volume (m <sup>3</sup> /h)				
		250	325	450	540	650
Distance between diffusers A (m)						
0.9	0.15	3.6	4.0	4.6	4.9	5.5
	0.2	2.8	3.4	4.0	4.5	5.0
	0.25	2.4	3.0	3.7	4.0	4.6
	0.3	1.9	2.5	3.3	3.7	4.2
	0.4	1.6	2.0	2.8	3.4	3.7
	0.5	1.35	1.7	2.4	2.7	3.3
1.2	0.15	2.8	3.4	4.0	4.5	5.0
	0.2	2.4	2.8	3.6	4.0	4.5
	0.25	1.8	2.4	3.3	3.8	4.2
	0.3	1.6	2.0	2.8	3.4	3.7
	0.4	1.25	1.6	2.1	2.6	3.1
	0.5	1.0	1.25	1.75	2.2	2.7
1.6	0.15	2.4	2.8	3.6	4.0	4.5
	0.2	1.75	2.2	3.0	3.6	3.9
	0.25	1.45	1.75	2.6	3.1	3.5
	0.3	1.2	1.6	2.1	2.7	3.1
	0.4	1.0	1.3	1.75	2.2	2.8
	0.5	-	1.0	1.4	1.75	2.0
2.0	0.15	1.8	2.4	3.2	3.7	4.0
	0.2	1.45	1.75	2.6	3.1	3.5
	0.25	1.25	1.6	2.1	2.5	3.1
	0.3	1.0	1.3	1.75	2.2	2.6
	0.4	0.8	1.2	1.4	1.75	2.0
	0.5	-	1.1	1.3	1.4	1.75



## PSB Type Swirl Diffusers

### Performance Data

530 neck size - single or multiple lines B = 4.0m						
Height H(m)	Air Velocity $V_{10}(m/s)$	Air volume (m <sup>3</sup> /h)				
		360	450	540	720	900
Distance between diffusers A (m)						
0.9	0.1	4.5	4.9	5.5	5.8	-
	0.15	3.5	4.4	5.0	5.7	5.8
	0.2	-	3.5	4.4	5.2	5.6
	0.25	-	-	-	4.7	5.2
	0.3	-	-	-	4.2	5.0
1.2	0.1	3.8	4.5	5.1	5.8	6.0
	0.15	-	-	4.3	5.2	5.6
	0.2	-	-	-	4.7	5.2
	0.25	-	-	-	3.6	4.7
	0.3	-	-	-	-	3.8
1.6	0.1	-	4.0	4.5	5.4	5.7
	0.15	-	-	-	4.6	5.2
	0.2	-	-	-	-	4.7
2.0	0.1	-	-	4.1	5.1	5.5
	0.15	-	-	-	4.0	4.9
	0.2	-	-	-	-	3.5

530 neck size - multiple lines B = 3.0m						
Height H(m)	Air Velocity $V_{10}(m/s)$	Air volume (m <sup>3</sup> /h)				
		360	450	540	720	900
Distance between diffusers A (m)						
0.9	0.1	4.4	4.9	5.3	5.8	-
	0.15	4.0	4.5	4.8	5.3	5.8
	0.2	3.7	4.0	4.3	4.9	5.5
	0.25	-	3.7	4.0	4.5	5.1
	0.3	-	-	3.6	4.3	4.8
1.2	0.1	4.2	4.6	4.9	5.5	6.0
	0.15	3.6	4.0	4.4	4.9	5.5
	0.2	-	3.5	3.8	4.4	5.0
	0.25	-	-	3.5	4.1	4.7
	0.3	-	-	-	3.7	4.2
1.6	0.1	3.8	4.3	4.5	5.0	5.7
	0.15	-	3.5	3.8	4.4	5.0
	0.2	-	3.5	3.8	4.4	5.0
	0.25	-	-	3.5	4.1	4.7
	0.3	-	-	-	3.7	4.2
2.0	0.1	3.3	3.9	4.2	4.7	5.3
	0.15	-	-	3.5	4.1	4.7
	0.2	-	-	-	3.7	4.2
	0.25	-	-	-	-	3.6
	0.3	-	-	-	-	3.2

## PSB Type Swirl Diffusers

### Performance Data

530 neck size - Quadrangle Alignment A=B							
Height H(m)	Air Velocity V <sub>air</sub> (m/s)	Air volume (m <sup>3</sup> /h)	360	450	540	720	900
		Distance between diffusers A (m)					
0.9	0.15	4.0	4.8	5.0	5.5	6.0	
	0.2	3.7	4.0	4.4	5.2	5.8	
	0.25	3.4	3.5	3.8	4.6	5.0	
	0.3	2.4	3.0	3.5	4.4	4.8	
	0.4	1.6	2.4	2.8	3.6	4.2	
	0.5	1.5	1.8	2.4	3.2	3.8	
1.2	0.15	3.4	4.0	4.4	5.0	5.6	
	0.2	2.6	3.4	3.8	4.6	5.0	
	0.25	2.2	2.8	3.4	4.0	4.6	
	0.3	1.8	2.4	2.8	3.6	4.2	
	0.4	1.48	1.8	2.4	3.2	3.6	
	0.5	1.4	1.5	1.6	2.5	3.0	
1.6	0.15	2.6	3.4	3.8	4.6	5.0	
	0.2	2.0	2.6	3.2	3.8	4.5	
	0.25	1.75	2.2	2.6	3.5	4.0	
	0.3	1.5	1.8	2.2	3.2	3.5	
	0.4	1.25	1.4	1.75	2.5	3.0	
	0.5	0.95	1.25	1.35	1.8	2.4	
2.0	0.15	2.2	2.8	3.3	4.0	4.5	
	0.2	1.7	2.1	2.5	3.5	4.0	
	0.25	1.4	1.75	2.1	2.8	3.5	
	0.3	1.3	1.5	1.7	2.4	2.9	
	0.4	0.95	1.25	1.4	1.85	2.4	
	0.5	0.8	1.0	1.2	1.65	1.9	

**POLYAIRE UK**  
Units 3 & 4, Torridge Close,  
Telford Way Business Park,  
Kettering, Northants,  
ENGLAND, NN16 8PY  
Telephone: 01536 519922  
[sales@polyaire.co.uk](mailto:sales@polyaire.co.uk)



[www.polyaire.co.uk](http://www.polyaire.co.uk)