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## SHPC SERIES

### Ceiling Diffusers with Air Pattern Control

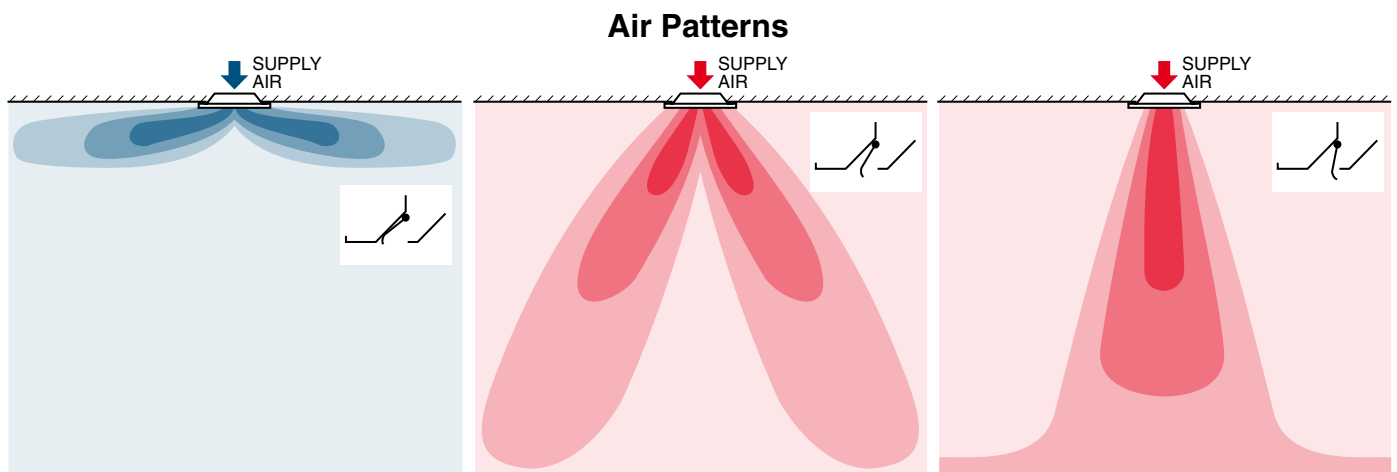
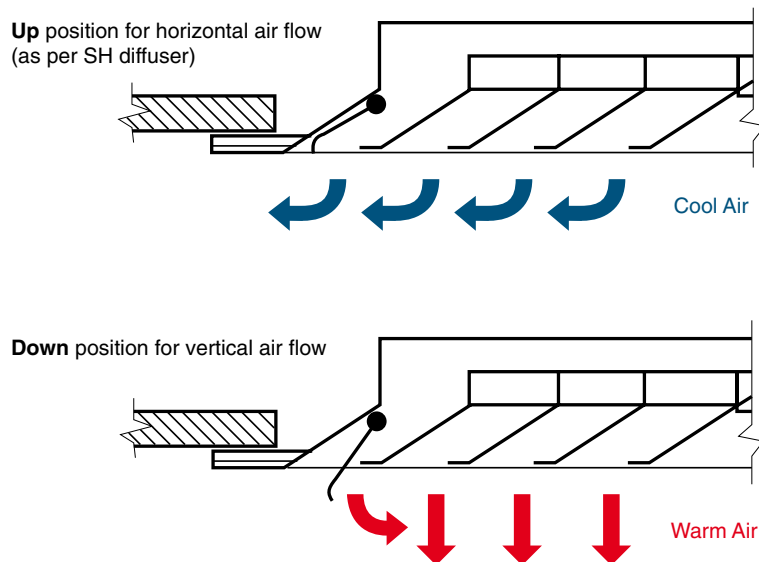
#### Features

The SHPC diffuser combines the functionality of the SH diffuser with 'Air Pattern Control' - a feature which provides increased flexibility and effectiveness.

The SHPC is an ideal choice for high ceiling applications, and for applications requiring the reduction, or elimination, of warm air stratification during Winter heating operation.

Adjustable louvres are located around the perimeter of the diffuser. These louvres allow the air throw to be changed from horizontal to vertical as needed.

The pattern controller louvres are individually adjustable at the face of the diffuser, providing a variety of air pattern options from a single diffuser.



## SHPC SERIES DIFFUSER

### SHPC Performance Data

Nominal Size (square)	Noise Correction Factor		Total Pressure Correction Factor		Vertical Throw Factor			
					Cooling	Heating $\Delta t^{\circ}\text{C}$		
	Horizontal	Vertical	Horizontal	Vertical	11°C $\Delta t$	0°C	11°C	22°C
150	3	7	1.3	1.6	1.3	1.1	0.8	0.6
225	3	7	1.5	2.3	1.5	1.2	0.9	0.6
300	3	7	1.5	2.3	1.6	1.3	1.0	0.6
375	3	7	1.5	2.3	1.7	1.3	1.0	0.6
450	3	7	1.5	2.3	1.7	1.3	0.9	0.6

Apply the factors shown in the table above to the SH Series performance data as follows:

- (a) **Total Pressure (TP)** = SH Pressure Data x Total Pressure Correction Factor.
- (b) **Noise Criteria (NC)** = SH NC Data + Noise Correction Factor.
- (c) **Vertical Throw** = SH Horizontal Throw x Vertical Throw Factor  
(applied to 0.25 m/s terminal velocity throw only).

### Sizes

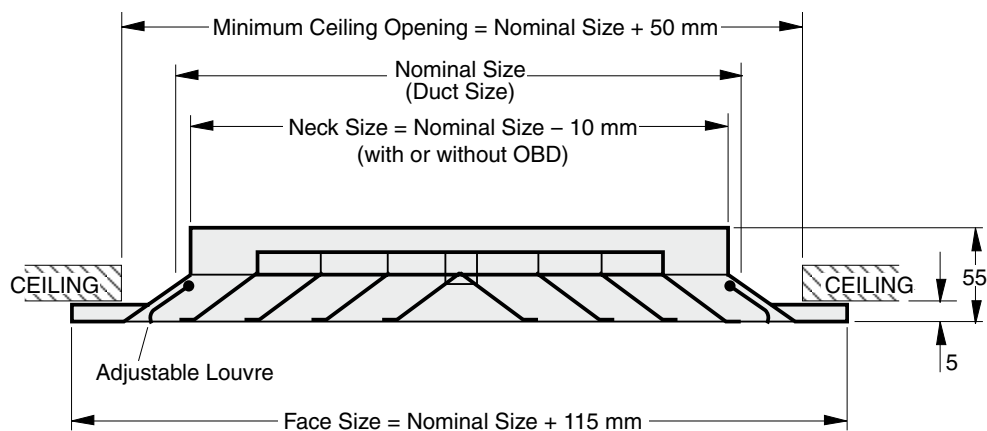
Square or rectangular nominal (duct) sizes are available in the following 75 mm increment range:

150, 225, 300, 375, 450

### Cores

Standard SH Series diffuser cores of 1, 2, D2, 3 and 4-way air patterns are used in the SHPC Series but, unlike the SH Series, cores are not interchangeable.

### Dimensions (mm)



**Note:** Nominal size 450 mm sq. diffuser has a face size of 595 mm sq. which will lay in a 600 mm T-rail system.

## PERFORMANCE DATA TABLES

### Definitions:

#### Neck Velocity (m/s)

Measured at the neck - the point where the diffuser attaches to the duct.

#### Total Pressure (Pa)

Stated for a diffuser without Opposed Blade Dampers (OBDs).

#### Noise Criteria (NC)

Sound levels are based on a room attenuation of 10 dB (SWL re 10<sup>-12</sup> watts) with one diffuser operating.

#### Guide for Environmental Sound Level Design

<i>Environment</i>	<i>Suggested NC Range</i>	<i>Environment</i>	<i>Suggested NC Range</i>
Broadcast, Recording Studios	15 - 20	Retail Stores & Shops	35 - 45
Concert / Opera Halls	20 - 25	General Offices, Schools	35 - 45
Residences, Bedrooms	25 - 35	Swimming Centres, Gymnasiums	35 - 50
Hospitals	25 - 35	Kitchens	40 - 50
Theatres, Halls, Churches	25 - 30	Factories	
Cinemas	30 - 35	- Light Engineering	45 - 65
Private Offices, Libraries	30 - 35	- Heavy Engineering	55 - 75
Restaurants, Bars	35 - 45		

#### Throw (m)

Based on isothermal air, for diffusers flush mounted to a ceiling.

For diffusers, mounted on exposed ductwork, throws will be approximately 70% of Performance Data values.  
For diffusers fitted with UltraThro, the throw will be approximately 80% of Performance Data values.

The Performance Data Charts state throw values per side in metres at three terminal velocities (as follows);

#### Terminal Velocities (m/s)

Throw 1 : 0.75 m/s






Throw 2 : 0.50 m/s






Throw 3 : 0.25 m/s






## Performance Data

## SH Square Diffusers

Nominal Size (mm)	Air Pattern (viewed from neck)	Neck Vel. (m/s) Total Press. (Pa)	1.5	2.0	2.5	3.0	3.5	4.0	4.5
			11	19	29	42	57	75	94

150 X 150		Total l/s NC Side	35 < 10		47 13		59 19		71 23		83 27		94 31		106 34	
			A	B	A	B	A	B	A	B	A	B	A	B	A	B
			SH1		l/s per side Throw (m) 1 2 3	35 2.1 2.7 4.0		47 2.7 3.4 4.9		59 3.0 3.7 5.5		71 3.4 4.0 5.8		83 3.7 4.6 6.4		94 4.0 4.9 6.7
SH2		l/s per side Throw (m) 1 2 3	18 0.9 1.5 3.0		24 1.5 2.1 3.7		30 1.8 2.7 4.0		35 2.1 3.0 4.3		42 2.4 3.4 4.6		47 2.7 3.7 5.2		53 3.0 3.7 5.5	
SHD2		l/s per side Throw (m) 1 2 3	18 0.9 1.5 3.0		24 1.2 2.1 3.7		30 1.8 2.7 4.0		35 2.1 3.0 4.3		42 2.4 3.4 4.6		47 2.4 3.7 5.2		53 2.7 3.7 5.5	
SH3		l/s per side Throw (m) 1 2 3	13 0.9 1.5 2.7	9 0.9 1.2 2.4	18 1.2 2.1 3.0	12 1.2 1.8 2.7	22 1.8 2.4 3.4	15 1.5 2.1 3.0	26 2.1 2.7 4.0	18 1.8 2.4 3.4	31 2.4 2.7 4.3	21 2.1 2.4 3.7	35 2.4 3.0 4.6	24 2.1 2.7 4.0	40 2.7 3.4 4.9	26 2.4 2.7 4.0
SH4		l/s per side Throw (m) 1 2 3	9 0.9 1.2 2.4		12 1.2 1.8 2.7		15 1.5 2.1 3.0		18 1.8 2.4 3.4		21 2.1 2.4 3.7		24 2.1 2.7 4.0		26 2.4 2.7 4.0	

225 X 225		Total l/s NC Side	80 < 10		106 15		133 21		160 26		186 30		212 34		239 37	
			A	B	A	B	A	B	A	B	A	B	A	B	A	B
			SH1		l/s per side Throw (m) 1 2 3	80 3.4 4.3 6.1		106 4.0 5.2 7.3		133 4.6 5.8 8.2		160 5.2 6.1 8.8		186 5.5 6.7 9.5		212 5.8 7.3 10.4
SH2		l/s per side Throw (m) 1 2 3	40 1.5 2.4 4.6		53 2.1 3.4 5.5		67 2.7 4.3 6.1		80 3.4 4.6 6.7		93 4.0 4.9 7.0		106 4.3 5.5 7.6		119 4.6 5.8 8.2	
SHD2		l/s per side Throw (m) 1 2 3	40 1.5 2.4 4.6		53 2.1 3.4 5.5		67 2.7 4.3 6.1		80 3.4 4.6 6.7		93 4.0 4.9 7.0		106 4.3 5.5 7.6		119 4.6 5.8 8.2	
SH3		l/s per side Throw (m) 1 2 3	30 1.5 2.4 4.0	20 1.2 2.1 3.7	40 2.1 3.4 4.9	26 1.8 2.7 4.0	50 2.7 3.7 5.2	33 2.4 3.4 4.6	60 3.4 4.0 5.8	40 2.7 3.7 5.2	70 3.7 4.3 6.4	46 3.0 4.0 5.5	80 4.0 4.9 6.7	53 3.4 4.0 5.8	90 4.0 4.9 7.3	60 4.3 4.9 6.1
SH4		l/s per side Throw (m) 1 2 3	20 1.2 2.1 3.7		26 1.8 2.7 4.0		33 2.4 3.4 4.6		40 2.7 3.7 5.2		46 3.0 4.0 5.5		53 3.4 4.0 5.8		60 4.3 4.9 6.1	

300 X 300		Total l/s NC Side	142 10		189 17		236 23		283 28		330 32		378 35		425 38	
			A	B	A	B	A	B	A	B	A	B	A	B	A	B
			SH1		l/s per side Throw (m) 1 2 3	142 4.6 5.8 8.2		189 5.5 6.7 9.8		236 6.1 7.6 11.0		283 6.7 8.2 11.9		330 7.3 9.1 12.8		378 7.9 9.8 13.7
SH2		l/s per side Throw (m) 1 2 3	71 2.1 3.4 6.1		94 3.0 4.6 7.3		118 3.7 5.8 8.2		142 4.6 6.1 8.8		165 5.2 6.7 9.5		189 5.8 7.3 10.4		212 6.1 7.6 11.0	
SHD2		l/s per side Throw (m) 1 2 3	71 2.1 3.4 6.1		94 3.0 4.6 7.3		118 3.7 5.8 8.2		142 4.6 6.1 8.8		165 5.2 6.7 9.5		189 5.8 7.3 10.4		212 6.1 7.6 11.0	
SH3		l/s per side Throw (m) 1 2 3	53 2.1 3.4 5.5	35 1.8 2.7 4.9	71 2.7 4.3 6.4	47 2.4 4.0 5.5	89 3.7 4.9 7.0	59 3.4 4.3 6.1	106 4.3 5.5 7.9	71 4.0 4.9 6.7	124 4.9 5.8 8.5	83 4.3 5.2 7.3	142 5.2 6.4 9.1	94 4.6 5.5 7.9	160 5.5 6.7 9.8	106 4.9 5.8 8.2
SH4		l/s per side Throw (m) 1 2 3	35 1.8 2.7 4.9		47 2.4 4.0 5.5		59 3.4 4.3 6.1		71 4.0 4.9 6.7		83 4.3 5.2 7.3		94 4.6 5.5 7.9		106 4.9 5.8 8.2	

Performance Data

SH Square Diffusers

Nominal Size (mm)	Air Pattern (viewed from neck)	Neck Vel. (m/s) Total Press. (Pa)	1.5	2.0	2.5	3.0	3.5	4.0	4.5
			11	19	29	42	57	75	94

375  X  375		<b>Total l/s NC Side</b>	<b>221 11</b>		<b>295 19</b>		<b>369 25</b>		<b>443 29</b>		<b>516 33</b>		<b>590 37</b>		<b>664 40</b>												
	SH1		<b>l/s per side</b>	221	295	369	443	516	590	664																	
			<b>Throw (m)</b>	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3									
				5.8	7.3	10.4	7.0	8.5	12.2	7.9	9.5	13.7	8.5	10.4	14.9	9.1	11.3	16.2	9.8	12.2	17.4	10.4	12.8	18.3			
				10.4	12.2	13.7	12.2	13.7	14.9	16.2	17.4	18.3															
	SH2		<b>l/s per side</b>	110	148	185	221	258	295	332																	
			<b>Throw (m)</b>	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3			
			2.7	4.3	7.9	3.7	5.8	9.1	4.6	7.0	10.1	5.8	7.9	11.0	6.7	9.1	11.9	7.3	9.1	12.8	7.9	9.8	13.7				
			7.9	9.1	10.1	9.1	10.1	11.0	11.0	11.9	12.8	13.7															
	SHD2		<b>l/s per side</b>	110	148	185	221	258	295	332																	
			<b>Throw (m)</b>	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3			
			2.7	4.3	7.9	3.7	5.8	9.1	4.6	7.0	10.1	5.8	7.9	11.0	6.7	9.1	11.9	7.3	9.1	12.8	7.9	9.8	13.7				
			7.9	9.1	10.1	9.1	10.1	11.0	11.0	11.9	12.8	13.7															
	SH3		<b>l/s per side</b>	83	55	110	74	138	92	166	110	194	129	221	148	249	166										
			<b>Throw (m)</b>	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3			
			2.7	4.0	7.0	2.4	3.7	7.9	3.4	4.9	8.8	5.5	6.1	6.4	7.0	7.0	7.3	7.9	8.5	9.8	6.4	7.0	8.5	12.2	6.1	7.3	35.7
			7.0	6.1	7.0	6.1	7.0	7.6	7.6	8.5	8.5	9.8	8.5	10.7	9.1	11.3	9.8	11.3	9.8	12.2	11.3	9.8	12.2	12.2	12.2	12.2	35.7
	SH4		<b>l/s per side</b>	55	74	92	110	129	148	166																	
			<b>Throw (m)</b>	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3			
			2.4	3.7	6.1	3.4	4.9	7.0	4.0	5.5	7.6	4.9	6.1	8.5	5.2	6.4	9.1	5.5	7.0	9.8	5.5	7.0	10.4	6.1	7.3	10.4	
			6.1	7.0	7.6	7.0	7.6	8.5	8.5	9.1	9.8	10.4	11.0	11.9	12.8	13.7	14.6	15.5	16.4	17.3	18.2	19.1	20.0	20.9	21.8	22.7	

450  X  450		<b>Total l/s NC Side</b>	<b>319 12</b>		<b>425 20</b>		<b>531 26</b>		<b>637 31</b>		<b>743 35</b>		<b>850 38</b>		<b>956 41</b>									
	SH1		<b>l/s per side</b>	319	425	531	637	743	850	956														
			<b>Throw (m)</b>	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
				6.7	8.8	12.5	8.2	10.4	14.6	10.4	12.5	18.0	11.0	13.7	19.2	11.9	14.6	20.7	11.9	14.6	20.7	12.5	15.5	22.0
				12.5	14.6	16.5	14.6	16.5	18.0	19.2	20.7	22.0												
	SH2		<b>l/s per side</b>	160	212	266	319	372	425	478														
			<b>Throw (m)</b>	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
			3.4	5.2	9.5	4.6	6.7	11.0	5.8	8.5	12.2	6.7	9.5	13.4	7.9	11.0	14.3	8.8	11.0	15.5	9.5	11.6	16.5	
			9.5	11.0	12.2	11.0	12.2	13.4	14.3	15.5	16.5													
	SHD2		<b>l/s per side</b>	160	212	266	319	372	425	478														
			<b>Throw (m)</b>	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
			3.4	5.2	9.5	4.6	6.7	11.0	5.8	8.5	12.2	6.7	9.5	13.4	7.9	11.0	14.3	8.8	11.0	15.5	9.5	11.6	16.5	
			9.5	11.0	12.2	11.0	12.2	13.4	14.3	15.5	16.5													
	SH3		<b>l/s per side</b>	119	80	160	106	199	133	239	160	279	186	319	212	358	239							
			<b>Throw (m)</b>	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
			3.4	4.9	8.2	2.7	4.3	7.3	4.0	5.8	9.5	5.8	7.3	10.4	6.4	8.2	11.0	7.9	9.8	13.7	6.7	8.2	10.1	12.5
			8.2	7.3	9.8	8.2	9.8	10.7	9.5	11.9	10.4	12.8	11.0	13.7	11.9	14.6	12.5							
	SH4		<b>l/s per side</b>	80	106	133	160	186	212	239														
			<b>Throw (m)</b>	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
			2.7	4.3	7.3	4.0	5.8	8.2	4.9	6.7	9.5	5.8	7.3	10.4	6.4	8.2	11.0	6.7	8.2	11.9	6.7	8.2	10.1	12.5
			7.3	8.2	9.5	8.2	9.5	10.4	9.5	10.4	11.0	11.9	12.8	13.7	14.6	15.5	16.4	17.3	18.2	19.1	20.0	20.9	21.8	22.7

525  X  525		<b>Total l/s NC Side</b>	<b>434 13</b>		<b>578 21</b>		<b>723 27</b>		<b>868 32</b>		<b>1012 36</b>		<b>1156 39</b>		<b>1301 42</b>									
	SH1		<b>l/s per side</b>	434	578	723	868	1012	1156	1301														
			<b>Throw (m)</b>	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
				7.9	10.4	14.6	9.8	11.9	17.1	11.9	14.6	21.0	13.1	15.9	22.6	14.0	17.1	24.1	14.0	17.1	24.1	14.6	18.0	25.6
				14.6	17.1	19.2	17.1	19.2	21.0	21.0	22.6	24.1	25.6											
	SH2		<b>l/s per side</b>	217	289	362	434	506	578	650														
			<b>Throw (m)</b>	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
			4.0	5.8	11.0	5.2	7.9	12.8	6.7	10.1	15.5	7.9	11.9	16.8	10.4	12.8	18.0	10.4	12.8	18.0	11.0	13.4	19.2	
			11.0	12.8	14.3	12.8	14.3	15.5	16.8	18.0	19.2													
	SHD2		<b>l/s per side</b>	217	289	362	434	506	578	650														
			<b>Throw (m)</b>	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
			4.0	5.8	11.0	5.2	7.9	12.8	6.7	10.1	15.5	7.9	11.9	16.8	10.4	12.8	18.0	10.4	12.8	18.0	11.0	13.4	19.2	
			11.0	12.8	14.3	12.8	14.3	15.5	16.8	18.0	19.2													
	SH3		<b>l/s per side</b>	163	109	217	144	271	181	325	217	379	253	434	289	488	325							
			<b>Throw (m)</b>	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
			3.7	5.8	9.8	3.4	5.2	8.5	4.6	6.7	11.0	6.7	8.5	12.8	9.1	11.9	15.9	7.9	9.8	13.7	9.8	11.9	14.6	
			9.8	8.5	11.3	9.8	12.5	11.0	13.7	11.9	14.9	12.8	15.9	13.7	15.9	13.7	17.1	14.6						
	SH4		<b>l/s per side</b>	109	144	181	217	253	289	325														
			<b>Throw (m)</b>	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
			3.4	5.2	8.5	4.6	6.7	9.8	5.8	7.6	11.0	6.7	8.5	12.8	7.9	9.8	13.7	7.9	9.8	13.7	8.5	10.4	14.6	
			8.5	9.8	11.0	9.8	11.0	11.9	11.9	12.8	13.7	14.6	15.5	16.4	17.3	18.2	19.1	20.0	20.9	21.8	22.7	23.6	24.5	25.4

## ORDER EXAMPLES

*Series & Air Pattern / Nominal Size*

SHPC3L / 450 x 300

**Note:** Nominal Sizes (mm):

Minimum: 150

Maximum: SHPC 450

## SUGGESTED SPECIFICATION

### SHPC Diffuser

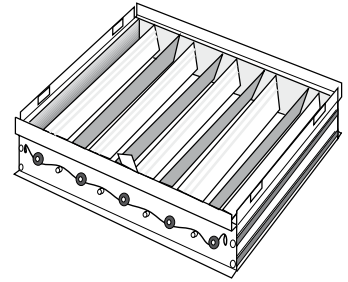
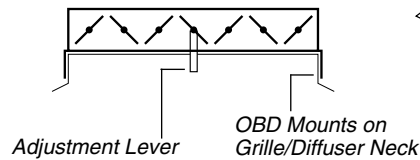
Louvre type ceiling diffusers and the air pattern control adjustable louvres shall be of aluminium construction having removable cores. Core patterns shall be selected to suit the air distribution layout shown on the drawings. Cores of different air patterns shall not be interchangeable. The adjustable louvres shall be permanently hinged to the frame with stainless steel clips, allowing the air throw from each side to be changed from horizontal through to vertical as required. Adjustment to be carried out at the diffuser face without need for tools. Diffusers shall be pre-treated, followed by gloss powder coating or enamel finish. Accessories must be purpose made for direct fitting to the diffusers.

Opposed Blade Dampers (OBDs) shall be of aluminium alloy extrusion (mill finish) and shall be lever operated from the face of the diffuser.

## ACCESSORIES

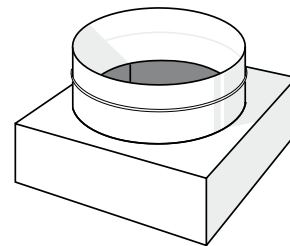
### Opposed Blade Damper (OBD)

- Controls air volume for balancing and fine adjustment
- Installs directly to neck with clip fasteners
- Lever operated from the face of the grille/diffuser
- Not intended for use as a shut-off damper
- Aluminium construction
- Sized to suit grilles/diffusers



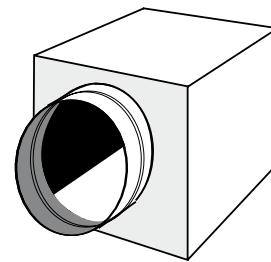
### Square to Round Adaptor (SRA)

- Adapts square neck grilles/diffusers to round flexible or rigid ducting
- Black Satin enamel finish on inside surfaces
- Galvanised steel construction; black polyethylene construction for size 300 sq. to 200/250 round
- Sized to suit grilles/diffusers and ducting



### Side Entry/Exit Plenum (Cushion Head)

- Adapts square neck grilles/diffusers to round flexible or rigid ducting in a restricted ceiling space
- Uninsulated, or Insulated (25 mm) for improved acoustic and thermal properties
- Galvanised steel
- Sized to suit grilles/diffusers and ducting



### Plaque (PLQ)

- Provides rigid support for grille/diffuser installed in suspended tile ceilings
- Full or half tile sizes
- Supplied factory fitted to grille/diffuser
- Lay-in or set-down styles
- Powder coated electro-galvanised steel

