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**WB Air**

**air distribution products**

**form function reliability**



## Ceiling Diffusers



**Directional Type WBD-4SDA**

# Ceiling Mounted Directional Diffuser

## Model : WBD-SDA

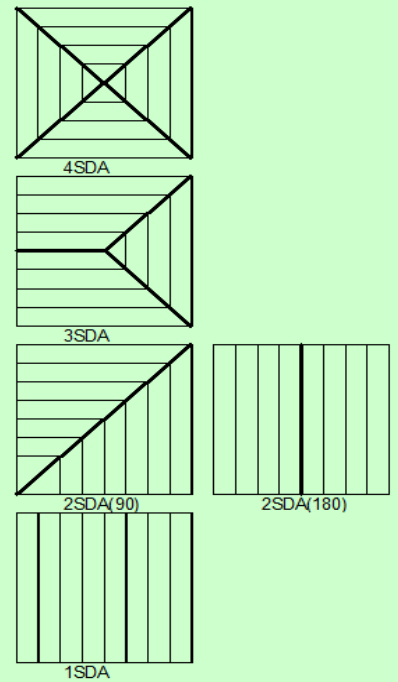


### To meet every conceivable design

Widely recommended for heating, cooling and ventilation applications, this range of diffusers defines versatility. Be it style size or air pattern, there is a WB air directional diffuser to meet that requirement. For effective distribution providing directed air diffusion, this diffusers can be selected in channeling the required amount of conditioned air into spaces where it's needed. Hence it is also available in 3,2 and 1 way pattern - to meet every conceivable design

The WBD - 4SDA is functionally designed for both surface mounting and lay in installation. When equipped with an opposed blade damper, not only does it control the amount of air required, it also acts to maintain an even distribution of air throughout the entire face of the diffuser. In the event where flexible ducts or rigid round ducts are involved, a square to round adaptor can be installed (with or without the presence of the GDS).

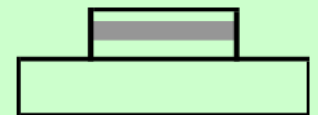
Though calibrated and tested for supply applications, the diffuser is as effective in return as well as transfer air applications.



### Accessories

#### Radial fan damper - Model DF (Standard) (Electro Galvanised 0.5 mm thk)

This universal type control damper can be used with all WBD diffusers. It's designed to sit perfectly into the neck, hence minimising air leakage and thus enhancing performance and noise criteria. And most importantly reducing required head room.



#### Opposed blade damper - Model GDS (Electro Galvanised 0.5 mm thk) / Extruded Alum 1.0 mm thk

This universal type control damper can be used with all WBD diffusers. It's designed to sit perfectly into the neck or back of an ADR, hence minimising air leakage and thus enhancing performance and noise criteria. The opposed blade action also assist to maintain an even air distribution throughout the entire face of the diffuser. (refer to correction factors for performance)



#### Square to round adaptor - Model ADR (Electro Galvanised 0.5 mm thk)

This adaptors can be used with all WBD diffusers. It's designed to sit into the neck of the diffuser or into the GDS. It provides a quick and convenient transition for contractors where round or flexible ducts are used. (refer to correction factors for performance)



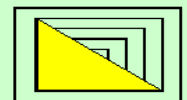
Different height available for different models & applications

#### Insulated Square to round adaptor - Model LB/D

Same function as the ADR but internally insulated with non-fibrous NBR Foam of 9 mm to further enhance the performance of the WBD-SDA. Glasswool insulation is possible but not advisable due to its fibrous content being a health hazard.

#### Blank Off Plate - Model BOP (Electro Galvanised 0.5 mm thk)

Used to blank off in-active sections of a diffuser where air is not required but the design requires a uniform layout of the same diffusers.



### Standard Sizes & Quick Reference Guide

Nominal Neck Size	Nominal Face Size	No of Blades (excl outer frame)	Opening Size	Maximum Collar Size Dia	Maximum CMH < 36 NC	Pressure Drop Pa	Horizontal Throw m
148 x 148	283 x 283	2	243 x 243	100	150	< 10	2
223 x 223	358 x 358	3	318 x 318	150	200	< 10	2.2
298 x 298	433 x 433	4	393 x 393	250	580	24.75	2.2
452 x 452	595 x 595	6	550 x 550	400	1500	19.5	3.2
487 x 487	605 x 605	6	560 x 560	400	1500	19.5	3.2

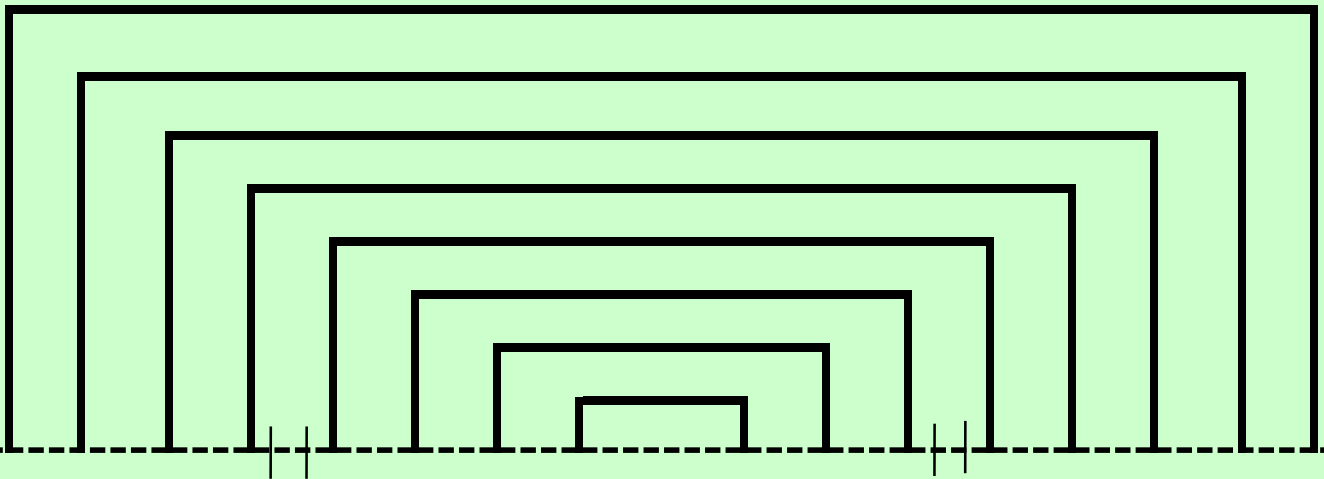
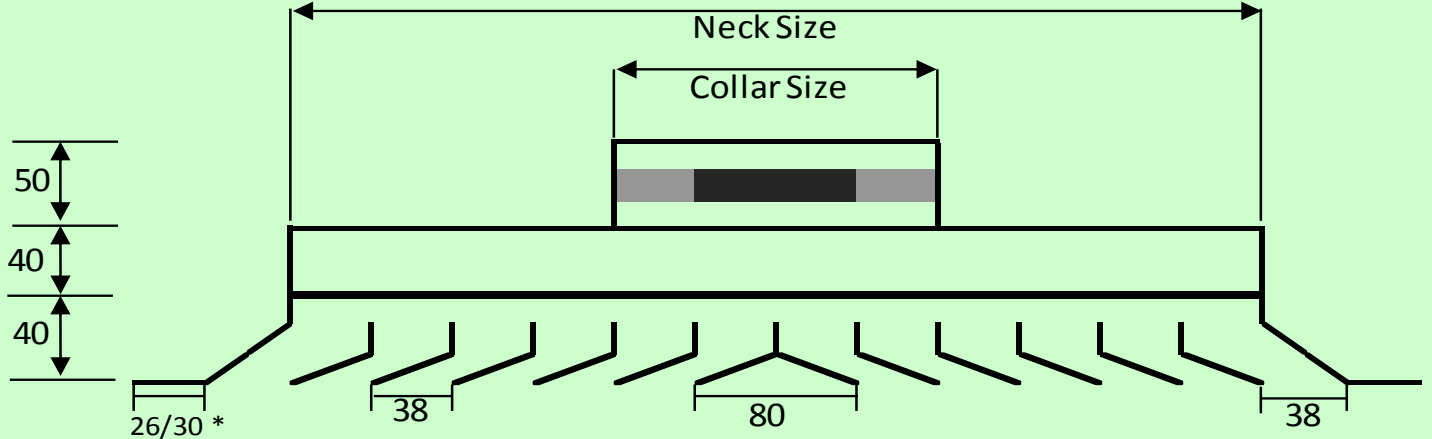
# Ceiling Mounted Directional Diffuser

## Model : WBD-SDA

### Constructions

#### 1) Model 1 : WBD-4SDA/ DF / ADR (Standard Construction)

Diffuser with square to round adaptor (model : ADR 50 mm height) and radial fan Damper (model : DF)

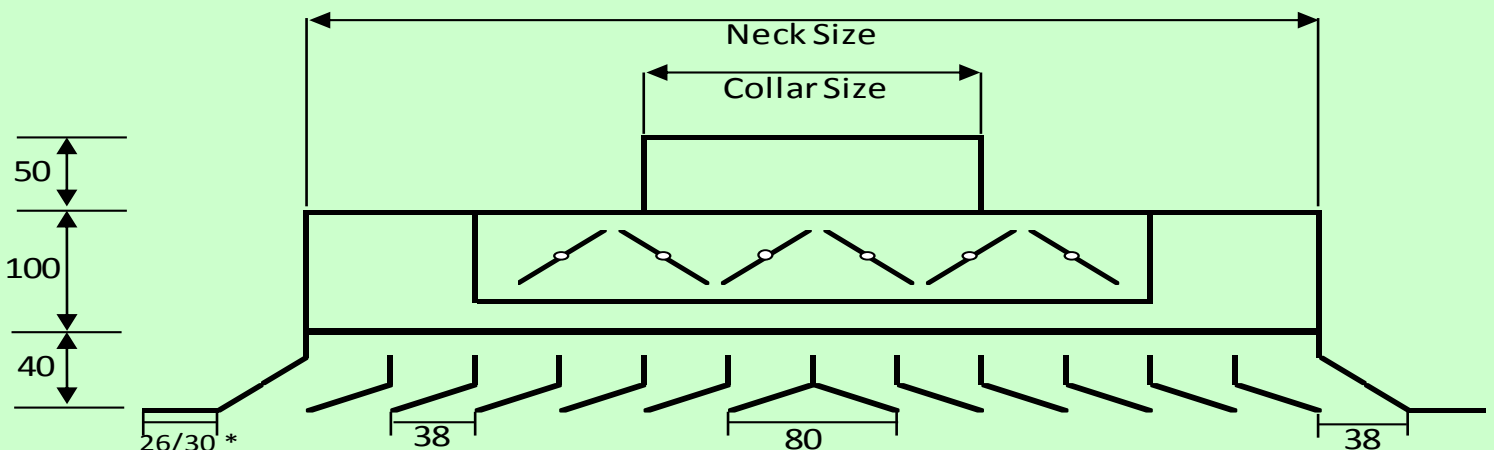


Note: Assembly Method for Configuration may differ for different Project.

All dimensions to nearest mm and are nominal. Details correct at print (09/16)

#### 2) Model 2 : WBD-4SDA / D / ADR

Diffuser with square to round adaptor (model : ADR 100 mm height) and opposed blade damper (model: GDS)



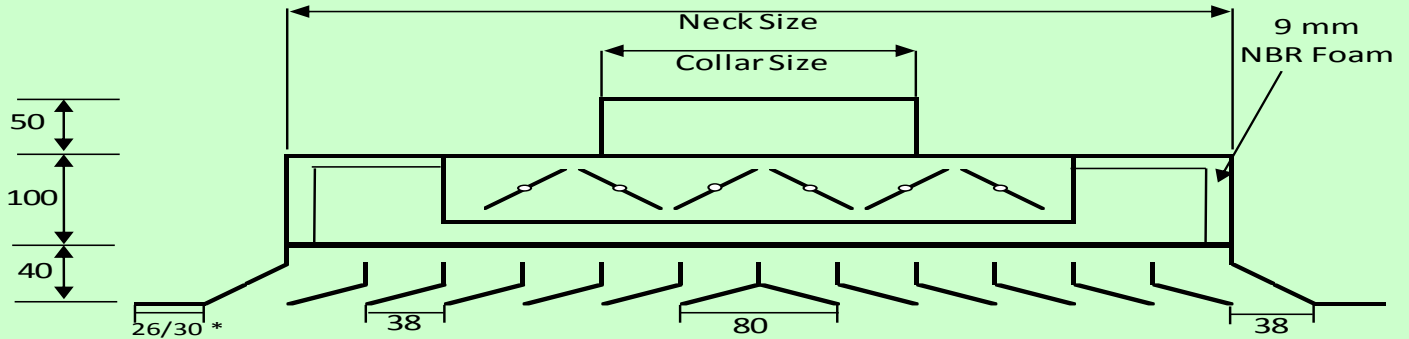
\* For F/S 595 x 595 & 605 x 605, the blade is 30 mm. For the rest of the available size, the blade is 26 mm.

# Ceiling Mounted Directional Diffuser

## Model : WBD-SDA

### 3) Model 3 : WBD-4SDA / LB / D

Diffuser with insulated square to round adaptor (model : LB/D 100 mm height) and opposed blade damper (model: GDS)



\* For F/S 595 x 595 & 605 x 605, the blade is 30 mm. For the rest of the available size, the blade is 26 mm.

## PERFORMANCE DATA

Neck Vel	1.5	2.0	2.5	3.0	3.5	4.0	4.5
P Drop	9.0	16.2	24.6	35.8	48.8	63.7	80.6

### F/S: 283 x 283 N/S: 148 X 148

CMH	125.0		165.0			210.0			250.0			295.0			335.0			380.0			
NC	<10		14.0			21.0			27.0			31.0			35.0			39.0			
4SDA Throw	1.8	2.7	4.9	2.4	3.7	5.5	3.0	4.6	6.4	3.7	4.9	7.0	4.3	5.2	7.3	4.6	5.5	7.9	4.9	6.1	8.5
3SDA Throw	2.1	3.4	5.5	3.0	4.6	6.4	3.7	4.9	7.0	4.6	5.5	7.6	4.9	5.8	8.2	5.2	6.4	8.8	5.5	6.7	9.4
2SDA Throw	2.4	4.0	5.8	3.4	4.9	6.7	4.3	5.5	7.6	4.9	5.8	8.5	5.2	6.4	9.1	5.5	6.7	9.8	5.8	7.3	10.4
1SDA Throw	3.7	5.2	7.3	4.9	5.8	8.2	5.5	6.7	9.4	5.8	7.3	10.4	6.4	7.9	11.0	6.7	8.2	11.9	7.3	8.8	12.5

### F/S: 358 X 358 N/S: 223 X 223

CMH	210.0		280.0			350.0			420.0			490.0			560.0			630.0			
NC	<10		17.0			24.0			30.0			34.0			38.0			42.0			
4SDA Throw	2.4	3.7	5.8	3.4	4.6	6.7	4.0	5.2	7.3	4.6	5.8	8.2	5.2	6.1	8.8	5.5	6.7	9.4	5.8	7.0	10.1
3SDA Throw	3.0	4.6	6.4	4.0	5.2	7.3	4.9	5.8	8.2	5.2	6.4	9.1	5.8	7.0	9.8	6.1	7.3	10.7	6.4	7.9	11.3
2SDA Throw	3.4	4.9	7.0	4.6	5.8	7.9	5.2	6.4	9.1	5.8	7.0	9.8	6.1	7.6	10.7	6.7	7.9	11.3	7.0	8.5	12.2
1SDA Throw	4.9	6.1	8.5	5.8	7.0	9.8	6.4	7.9	11.0	7.0	8.5	12.2	7.6	9.1	13.1	7.9	9.8	14.0	8.5	10.4	14.6

### F/S: 433 X 433 N/S: 298 X 298

CMH	325.0		435.0			545.0			650.0			760.0			875.0			980.0			
NC	10.0		19.0			26.0			32.0			35.0			40.0			44.0			
4SDA Throw	3.0	4.6	6.4	4.0	5.2	7.6	4.9	6.1	8.5	5.2	6.4	9.1	5.8	7.0	10.1	6.1	7.6	10.7	6.4	7.9	11.3
3SDA Throw	3.7	5.2	7.3	4.9	6.1	8.5	5.5	6.7	9.4	6.1	7.3	10.4	6.4	7.9	11.3	7.0	8.5	11.9	7.3	8.8	12.8
2SDA Throw	4.3	5.5	7.9	5.2	6.4	9.1	5.8	7.3	10.4	6.4	7.9	11.3	7.0	8.5	12.2	7.6	9.1	13.1	7.9	9.8	13.7
1SDA Throw	5.5	6.7	9.8	6.4	7.9	11.3	7.3	8.8	12.5	7.9	9.8	13.7	8.5	10.4	14.6	9.1	11.3	15.8	9.8	11.9	16.8



# Ceiling Mounted Directional Diffuser

## Model : WBD-SDA

### PERFORMANCE DATA

<b>Neck Vel</b>	<b>1.5</b>	<b>2.0</b>	<b>2.5</b>	<b>3.0</b>	<b>3.5</b>	<b>4.0</b>	<b>4.5</b>
<b>P Drop</b>	<b>9.0</b>	<b>16.2</b>	<b>24.6</b>	<b>35.8</b>	<b>48.8</b>	<b>63.7</b>	<b>80.6</b>

#### F/S: 595 x 595 N/S: 452 X452

<b>CMH</b>	470.0			630.0			785.0			900.0			1050.0			1250.0			1400.0		
<b>NC</b>	12.0			21.0			28.0			34.0			38.0			42.0			46.0		
<b>4SDA Throw</b>	3.7	5.2	7.3	4.9	5.8	8.2	5.5	6.7	9.4	5.8	7.3	10.4	6.4	7.9	11.0	6.7	8.2	11.9	7.3	8.8	9.4
<b>3SDA Throw</b>	4.6	5.8	8.2	5.5	6.7	9.4	6.1	7.3	10.4	6.7	8.2	11.6	7.0	8.8	12.5	7.6	9.4	13.1	8.2	10.1	14.0
<b>2SDA Throw</b>	5.2	6.1	8.8	5.8	7.3	10.1	6.7	7.9	11.3	7.3	8.8	12.5	7.6	9.4	13.4	8.2	10.1	14.3	8.8	10.7	15.2
<b>1SDA Throw</b>	6.1	7.6	10.7	7.0	8.8	12.5	7.9	9.8	13.7	8.8	10.7	15.2	9.4	11.6	16.5	10.1	12.5	17.7	10.7	13.1	18.6

#### F/S: 600 X360 N/S: 482 X250

<b>CMH</b>	335.0			450.0			560.0			675.0			785.0			900.0			1000.0		
<b>NC</b>	<10			18.0			25.0			31.0			35.0			39.0			43.0		
<b>4SDA Throw L</b>	3.0	4.6	6.7	4.3	5.5	7.6	4.9	6.1	8.5	5.5	6.7	9.4	5.8	7.3	10.4	6.4	7.6	11.0	6.7	8.2	11.6
<b>4SDA Throw S</b>	1.8	2.7	4.9	2.4	3.7	5.8	3.0	4.6	6.4	3.7	4.9	7.0	4.3	5.2	7.6	4.6	5.8	7.9	4.9	6.1	8.5
<b>3SDA Throw L</b>	3.4	4.9	7.0	4.6	5.8	7.9	5.2	6.4	8.8	5.8	7.0	9.8	6.1	7.6	10.7	6.7	7.9	11.3	7.0	8.5	12.2
<b>3SDA Throw S</b>	1.8	2.7	4.9	2.4	3.7	5.8	3.0	4.6	6.4	3.7	4.9	7.0	4.3	5.2	7.6	4.6	5.8	7.9	4.9	6.1	8.5
<b>2SDA(18) Throw L</b>	3.7	5.2	7.3	4.9	5.8	8.2	5.5	6.7	9.4	5.8	7.3	10.4	6.4	7.9	11.0	6.7	8.2	11.9	7.3	8.8	12.5
<b>2SDA(9) Throw L</b>	4.6	5.8	8.2	5.5	6.7	9.4	6.1	7.3	10.4	6.7	8.2	11.6	7.0	8.8	12.5	7.6	9.4	13.1	8.2	10.1	14.0
<b>2SDA(9) Throw S</b>	2.4	4.0	5.8	3.4	4.9	6.7	4.3	5.5	7.6	4.9	5.8	8.5	5.2	6.4	9.1	5.5	6.7	9.8	5.8	7.3	10.4
<b>1SDA Throw L</b>	5.2	6.1	8.8	5.8	7.3	10.1	6.7	7.9	11.3	7.3	8.8	12.5	7.6	9.4	13.4	8.2	10.1	14.3	8.8	10.7	15.2

#### Return Correction Factors

NECK SIZE	-Neg SP	NC
148 x 148	0.73 TP	Listed + 0
223 x 223	0.87 TP	Listed + 2
298 x 298	0.93 TP	Listed + 4
452 x 452	1.47 TP	Listed + 6
487 x 487	1.47 TP	Listed + 6
482 x 250	1.47 TP	Listed + 3

Dia	Recommended CMH
150	100 to 200
200	201 to 400
250	401 to 600
300	601 to 850
350	851 to 1100
400	1101 to 1500

#### Notes

All units tested in accordance to ADC (USA) equipment test code 1062:GRD-84

Acoustics AS 1217.2

All pressures in pascal

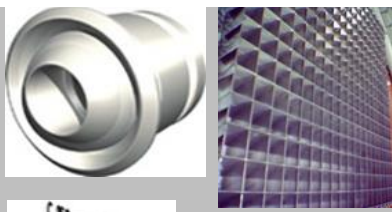
Throw are listed in meters and to a terminal velocity of 0.75,0.5 & 0.25 m/s

Throw data is based on supply air and room air being at isothermal conditions.

Sound data NC values are based on a room absorption of -10dB, re 10-12 watts

Data is tabulated for supply applications and are tested for maximum ceiling effect.

For no ceiling application, the horizontal throw will be reduce by about 25%, producing more downward projection



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