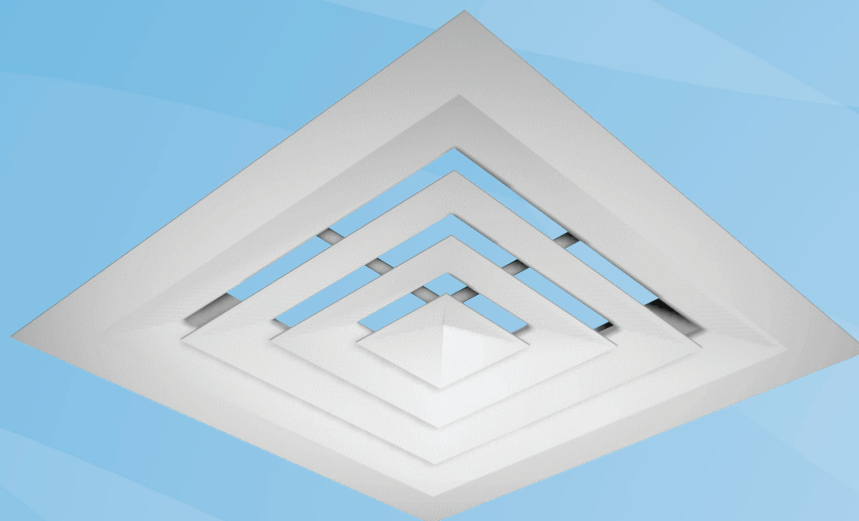


# Halton DFB

## Conical Ceiling Diffuser



- Horizontal air supply, suitable also for exhaust
- Installation flush to the ceiling, light-weight aluminium design
- Circular duct connection with rubber gasket
- All sizes available integrated in an aluminium panel for installation in modular 600x600 mm suspended ceiling
- Openable cone module enables cleaning of the diffuser and ductwork

### Accessories

- Airflow adjustment damper
- Plenum options with measurement and adjustment functions
- Measurement and adjustment module

### MATERIAL AND FINISHING

PART	MATERIAL	FINISHING	NOTE
Frame	Aluminium	Anodised Polyester-painted/ White RAL 9010/ 50% gloss	Epoxy-painted (100%) available
Central cone	Aluminium	Anodised Polyester-painted/ White RAL 9010/ 50% gloss	Epoxy-painted (100%) available
Plenum / spigot	Galvanised steel		

## QUICK SELECTION

qv	Pa	360	480	600	840	1080	1440	1800	2160	2400	2700	3000	3600	4800	6000	7800
	l/s	30	40	50	70	90	120	150	180	200	225	250	300	400	500	650
	m <sup>3</sup> /h	108	144	180	252	324	432	540	648	720	810	900	1080	1440	1800	2340
DFB/A-6-6	LpA	22	28	34	46											
	ΔPst	24	43	67	131											
	ΔPtot	25	45	70	137											
	Ld	-	-	-	-											
	Lmin	-	1,2	2,0	3,6											
	L0.2	2,0	2,6	3,4	4,8											
DFB/A-9-9	LpA			20	31	39	50									
	ΔPst			20	39	64	114									
	ΔPtot			20	40	66	117									
	Ld			-	3,6	4,2	5,0									
	Lmin			-	2,0	3,4	5,2									
	L0.2			2,8	4,6	5,8	7,8									
DFB/A-12-12	LpA					25	30	36	39	43						
	ΔPst					19	29	42	52	66						
	ΔPtot					20	31	45	55	70						
	Ld					3,8	4,8	5,4	5,8	6,4						
	Lmin					2,0	3,4	5,0	5,8	7,0						
	L0.2					7,2	9,2	11,0	12,2	13,8						
DFB/A-15-15	LpA					25	30	35	39	43						
	ΔPst					18	29	41	51	64						
	ΔPtot					19	30	42	52	66						
	Ld					4,0	4,8	5,6	6,2	6,8						
	Lmin					2,0	3,6	5,2	6,2	7,6						
	L0.2					8,0	10,0	12,0	13,2	15,0						
DFB/A-18-18	LpA							21	22	23	24	28	36	44		
	ΔPst							9	12	15	18	26	46	72		
	ΔPtot							10	13	16	19	27	48	76		
	Ld							2,8	3,0	3,4	3,6	4,4	5,6	7,0		
	Lmin							6,2	7,2	8,2	9,4	11,6	16,2	20,8		
	L0.2							7,0	7,8	8,8	9,6	11,6	15,6	19,4		
DFB/A-21-21	LpA										20	24	32	40	51	
	ΔPst										11	16	29	45	76	
	ΔPtot										12	17	30	47	79	
	Ld										3,0	3,6	4,8	6,0	7,4	
	Lmin										8,4	10,2	14,2	18,2	24,2	
	L0.2										8,6	10,4	13,8	17,2	22,4	
DFB/A-24-24	LpA											20	26	33	43	
	ΔPst											11	19	29	50	
	ΔPtot											11	20	31	52	
	Ld											3,0	4,0	5,0	6,4	
	Lmin											9,0	12,6	16,2	21,6	
	L0.2											9,4	12,4	15,6	20,2	

LpA values presented with room attenuation 4 dB (red 10m<sup>2</sup> - sab). When using room attenuation 8 dB (red 25m<sup>2</sup> - sab): LpA - 4dB.

Pa Supply air cooling capacity, W  
 LpA A-weighted sound pressure level, reduced by total equivalent absorption surface of 10m<sup>2</sup>, dB(A) red 10m<sup>2</sup> - sab  
 ΔPst Static pressure drop, Pa

ΔPtot Total pressure drop, Pa  
 Ld Distance from the supply unit, at which air jet detaches from ceiling, m  
 Lmin Minimum distance between central lines of two supply units, m (V3 = 0,25m/s at 1.8m height)  
 L0.2 Isothermal throw length, m when residual velocity of supply air jet 0,2 m/s  
 Room temperature (Tr) = 24 °C  
 Supply air temperature (Ta) = 14 °C  
 Room height = 2,8 m

## ACCESSORIES

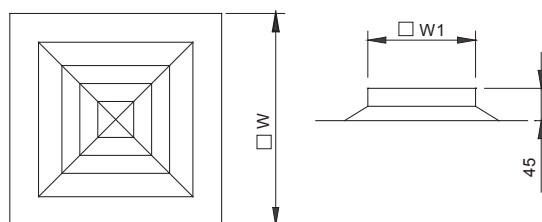
ACCESSORY	CODE	DESCRIPTION
Plenum	PH	Plenum for horizontal duct connection (without insulation)
Plenum	PI	Plenum for horizontal duct connection (mineral wool insulation on 4 sides)
Plenum	PR	Plenum for horizontal duct connection with airflow adjustment
Plenum	PV	Plenum for vertical duct connection (with or without insulation)
Airflow measurement and adjustment module	MSM	For supply installation
Sound attenuation	IN	Mineral wool in the plenum
Flow adjustment damper	OD	Aluminium opposite blade damper for flow adjustment

## Product Models

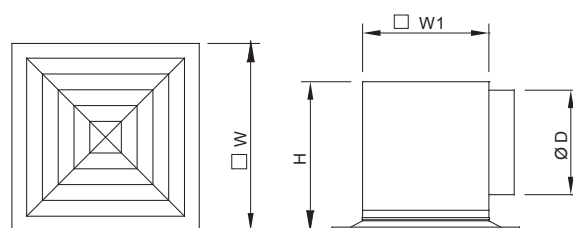
All standard sizes are available also with 1, 2 or 3 supply directions.

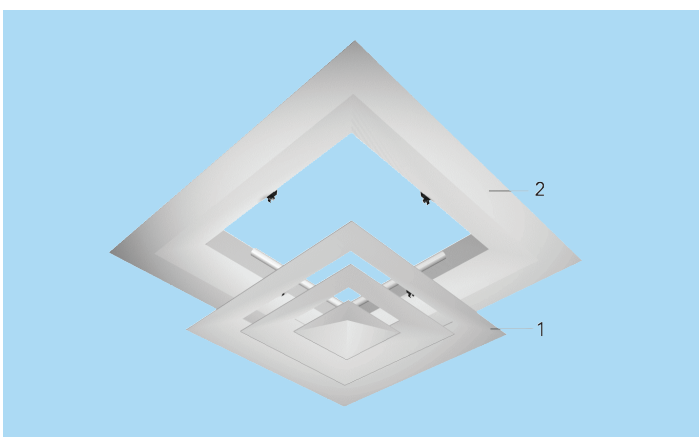
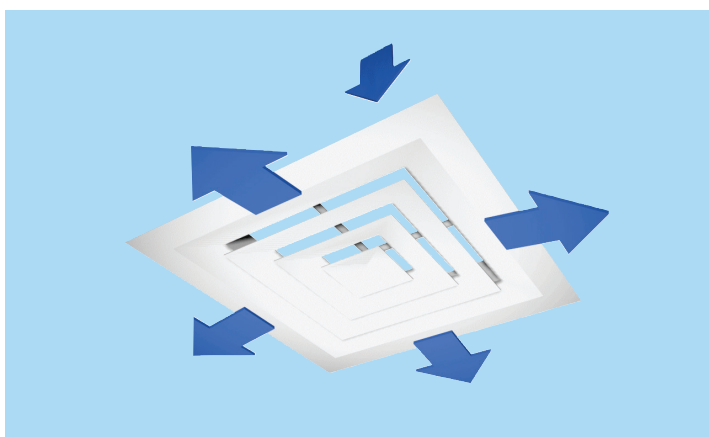
## DIMENSIONS

NS	W	W1
6x6	295	150
9x9	370	225
12x12	445	300
15x15	520	375
18x18	595	450
21x21	670	525
24x24	745	600



NS	W	W1	H	ØD
6x6	295	150	225	124
9x9	370	225	310	199
12x12	445	300	350	249
15x15	520	375	415	314
18x18	595	450	500	399
21x21	670	525	550	449
24x24	745	600	600	499





## Function

Air is supplied horizontally into the space through the slots in the conical front panel.

Supply air mixes with room air in the vicinity of the diffuser.

The fixed cones of the diffuser are designed to ensure that the supply air flows along the ceiling.

The DFB diffuser can also be used as an exhaust unit.

## Installation

### CODE DESCRIPTION

- |   |                 |
|---|-----------------|
| 1 | Supply air part |
| 2 | Frame           |

The diffuser is connected either directly to the duct or using plenum PH, PI, PR or PV.

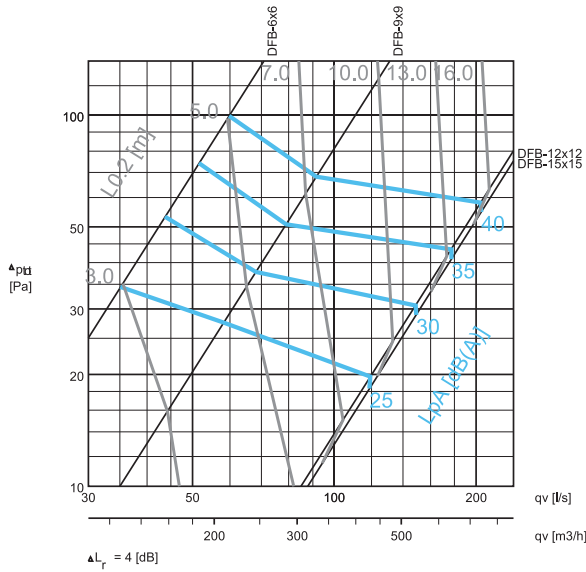
The DFB diffuser is fastened to the plenum with springs.

### Dimensions of installation hole

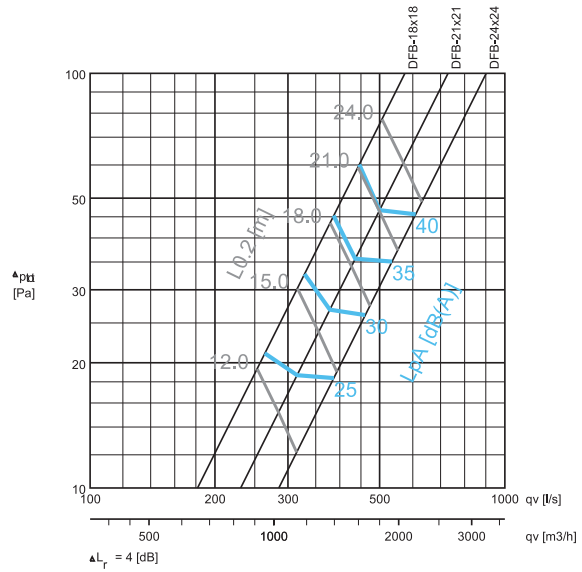
NS	H mm	L mm
6x6	215	215
9x9	290	290
12x12	365	365
15x15	440	440
18x18	515	515
21x21	590	590
24x24	665	665

Pressure drop, throw pattern and sound data

DFB-6x6, DFB-9x9, DFB-12x12, DFB-15x15



DFB-18x18, DFB-21x21, DFB-24x24



Selection example :

Requirements : qv = 400 l/s  
 Lp(A) < 35 dB(A)  
 L0.2 < 18.0 m  
 Selection: DFB-21-21  
 Lp(A) = 32 dB(A)  
 L0.2 = 17.0 m  
 ΔPtot = 30 Pa

SOUND LEVEL DATA, SUPPLY

Radial jet	qv (l/s)	qv (m³/h)	ΔPst (Pa)	ΔPtot (Pa)	F (Hz)								LpA [dB(A)]	NR	NC
					63	125	250	500	1000	2000	4000	8000			
DFB/A-6-6	35	126	33	34	52	31	26	23	20	15	11	3	25	17	16
	44	158	52	54	54	34	32	31	28	24	22	10	30	24	22
	52	187	72	75	56	36	36	36	34	30	30	19	35	31	28
	60	216	96	100	57	38	40	41	39	36	37	26	40	37	35
DFB/A-9-9	58	209	27	27	41	30	28	26	26	18	5	3	25	22	20
	68	245	37	38	41	32	32	31	31	24	13	4	30	27	25
	79	284	49	51	42	35	36	36	36	30	21	11	35	32	30
	91	328	66	67	42	38	39	40	40	36	29	18	40	36	35
DFB/A-12-12	119	428	19	20	53	33	29	23	20	8	3	3	25	17	16
	149	536	29	31	55	37	34	31	28	19	7	3	30	24	22
	177	637	41	43	56	39	39	37	34	27	16	6	35	30	29
	205	738	55	58	58	42	42	42	40	34	24	8	40	36	35
DFB/A-15-15	119	428	18	18	53	29	28	24	20	7	3	3	25	18	17
	149	536	28	29	55	34	33	31	28	18	6	3	30	24	22
	177	637	40	41	56	37	38	37	35	26	16	5	35	31	29
	205	738	53	55	57	40	42	42	40	33	25	6	40	36	35
DFB/A-18-18	264	950	20	21	52	28	31	24	18	10	3	3	25	17	16
	329	1184	31	33	53	33	36	32	27	20	6	3	30	24	22
	387	1393	43	45	54	37	40	38	34	28	16	4	35	30	29
	446	1606	57	60	54	40	43	43	39	34	24	7	40	35	34
DFB/A-21-21	316	1138	18	19	49	27	34	25	18	13	3	3	25	19	16
	378	1361	26	27	50	32	38	32	26	21	3	3	30	24	23
	436	1570	34	36	51	35	41	38	32	28	12	3	35	30	29
	499	1796	45	47	52	39	44	43	38	35	23	5	40	35	34
DFB/A-24-24	387	1393	18	18	48	27	35	25	17	13	3	3	25	20	17
	461	1660	25	26	49	31	39	32	25	22	3	3	30	24	22
	536	1930	34	35	50	35	42	38	32	29	12	3	35	30	28
	611	2200	44	46	51	39	45	43	38	36	22	5	40	35	34

LpA values presented with room attenuation 4 dB (red 10m² - sab). When using room attenuation 8 dB (red 25m² - sab): LpA - 4dB. NR/NC noise criteria

## Adjustment

The airflow rate can be adjusted and measured only when the diffuser is installed.

In order to enable airflow adjustment and measurement of airflow rate, it is recommended that the diffuser be connected to the plenum equipped with the MSM module.

The supply flow rate is adjusted by using the measurement and adjustment module MSM.

Detach the central cones (supply air part) and pass the tubes and control spindle through the diffuser. Measure the differential pressure with a manometer. The flow rate is calculated using the formula below.

$$q_v = k * \sqrt{\Delta p_m}$$

Adjust the airflow rate by rotating the control spindle until the desired setting is achieved.

Lock the damper position with a screw.

Replace the tubes and spindle into the plenum and reattach the central cone.

K-factor for installations with different safety distances (D= duct diameter)

### Airflow adjustment damper OD

The airflow rate is adjusted by turning the damper blades behind the grille with a screwdriver. The measurement is carried out when diffuser is installed.

PH	>6XD	min 3XD
100	6	7
125	10	12
160	19	22
200	28	32
250	49	51

## Servicing

Remove the central cones by gently drawing out the central part.

Clean the parts by wiping them with a damp cloth.

Push the central cones back into place so that the springs lock.

### Option: with balancing plenum PH + MSM

Remove the measurement and adjustment module by gently pulling the shaft (not the control spindle).

Wipe the parts with a damp cloth, instead of immersing in water.

Remount the measurement and adjustment module by pushing in the shaft until the module meets the stopper.

Push the central cones back into place so that the springs lock.

## Suggested Specifications

The diffuser shall be made of extruded aluminium, anodised or polyester-painted to white (RAL 9010) colour.

The bevel angles of the outer frame and central cone shall be welded so that the joints are almost invisible.

The diffuser shall be connected to the ductwork using a plenum with mineral wool as sound attenuation material.

The plenum shall be equipped with an airflow measurement and adjustment module.

The central cones of the diffuser shall be detachable to provide access to the measurement and adjustment module in the plenum.

## Product Code

DFB/S-A-B

S = Model

- |   |  |
|---|--|
| A | Standard                               |
| B | Suspended ceiling installation 600x600 |
| C | Suspended ceiling installation 741x741 |

A = Size of connection

- |      |                          |
|------|--------------------------|
| S=A: | 6, 9, 12, 15, 18, 21, 24 |
| S=B: | 6, 9, 12, 15             |
| S=C: | 6, 9, 12, 15, 18         |

B = Height of connection

- |       |    |
|-------|----|
| A=6:  | 6  |
| A=9:  | 9  |
| A=12: | 12 |
| A=15: | 15 |
| A=18: | 18 |
| A=21: | 21 |
| A=24: | 24 |

Specifics and accessories

FI = Finishing

- |    |          |
|----|----------|
| PN | Painted  |
| AN | Anodised |

CO = Colour

- |   |                |
|---|----------------|
| W | White          |
| X | Special colour |

Code example

DFB/A-6-6, FI=PN,CO=W

Sub products

PDF Plenum for DFB and DFC