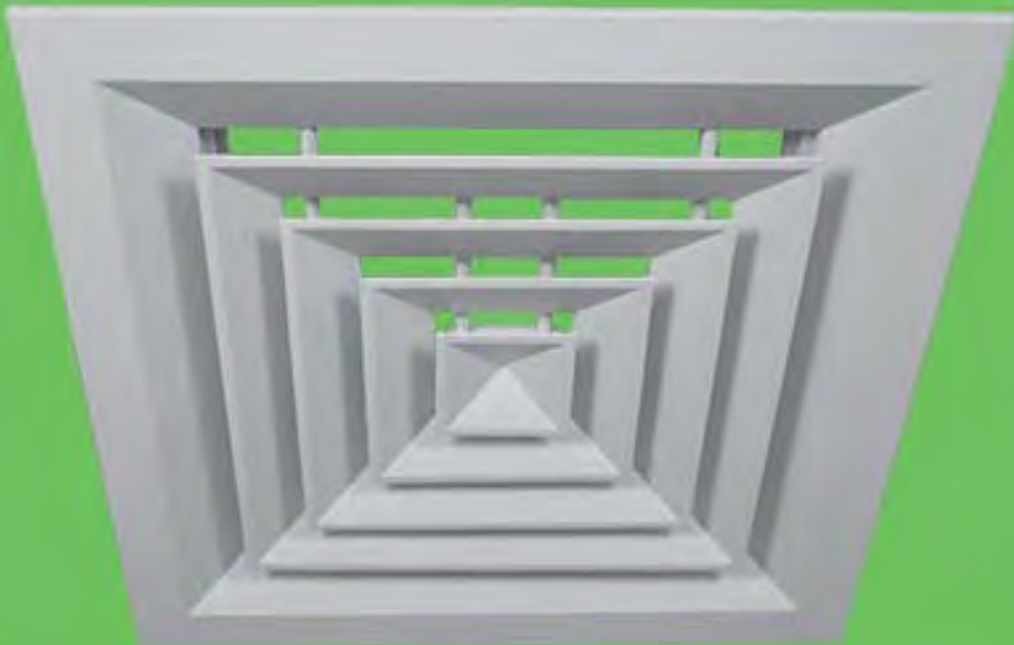


Louvred Face Diffusers

DF/MD	Flanged horizontal blow diffuser
DF-T8	8mm drop tegular tile replacement
DF-T16	16mm drop tegular tile replacement
DE	Recessed frame horizontal blow diffuser
DFA	Flanged adjustable diffuser
TD	Tile diffuser 450 x 450 only



Louvred Face Diffusers

DF / MD / DE / TD

Introduction

The Waterloo series D multicone diffusers are supplied as pressed aluminium construction in the standard square sizes. Other sizes and shapes are constructed of aluminium alloy extrusions with mitred and welded/cleated frames. They are ideal for most commercial projects requiring high quality diffusers for integration with a variety of ceiling types. The range is available with 5 frame styles and 14 different air pattern control core designs for vertical and horizontal diffusion.

Product Description

DF/MD	Flanged horizontal blow diffuser
DF-T8	8mm drop tegular tile replacement 375 & 450mm neck sizes
DF-T16	16mm drop tegular tile replacement 375 & 450 square necks
DE	Recessed frame horizontal blow diffuser
TD	Tile diffuser 4 way 450 x 450 only
OBSS	Opposed blade damper
OBLL	Lever operated damper via the diffuser face
PBD	Plenum box
NR/D	Top entry neck reducer

Features

- Five frame styles for integration with most ceilings
- 14 core styles to suit required air pattern
- Lightweight aluminium construction
- Fixed or adjustable patterns
- Suits 300, 500, 600 & 1200 ceiling grid systems

Finishes

PPG9010 (RAL 9010 Gloss - 80% Gloss White)

PPM9010 (RAL 9010 Matt - 20% Gloss White)

PPM9006 (RAL 9006 Matt - 30% Gloss Silver)

Other colours available on request

Note: TD only in RAL 9010 - 20% Gloss

Weights

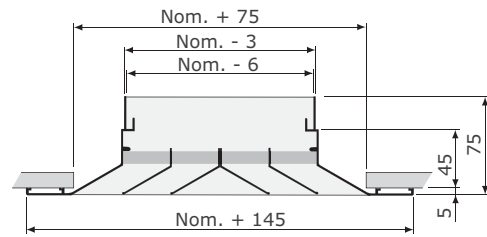
DF/MD/DE/TD 12.5kg/m² face area

OBSS/ED 9.5kg/m² face area

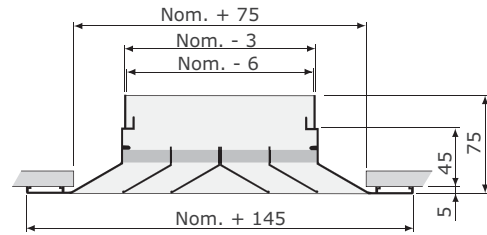
Sizes

Series DF/DE	Minimum size - 150 x 150 duct size Maximum size - 1200 x 600 duct size
Series DF-T8/T16	Minimum size - 375 x 375 duct size (500mm tile replacement) Maximum size - 450 x 450 duct size (600mm tile replacement)

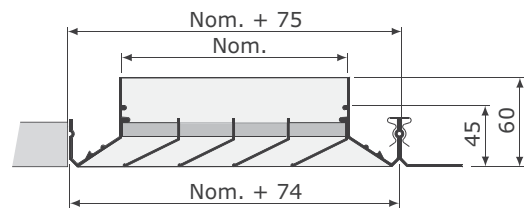
Standard increments of 75mm only



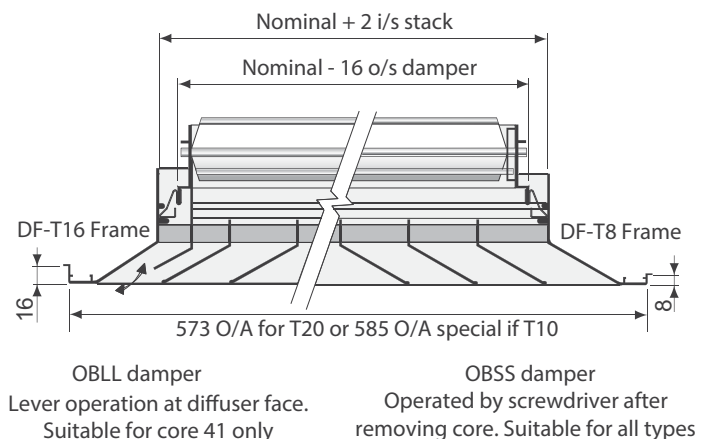
DF Typical lay-in grid



MD / TD Typical lay-in grid



DE Typical clip in grid



DF - T16 and DF - T8 Typical tegular grid

ORDER EXAMPLE

DF-41/300/300/PPM9010/OBSS

Type _____
Duct width _____
Duct height _____
Finish _____
Damper _____

Louvred Face Diffusers

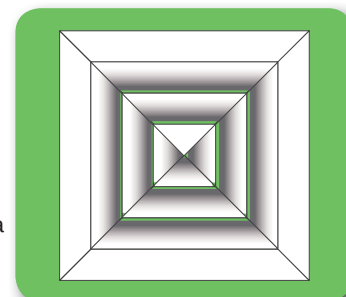
DF / MD / DE / TD

Selection Criteria

Ceiling height 2.7m.
Temperature differential -10K Radius of diffusion - Minimum and maximum throw which results in an average air velocity within the occupied zone of 0.25m/s and 0.10m/s respectively. Noise level is based on diffuser sound power level less 8dB room absorption

Selection Example

DF41/300 x 300
Air flow rate 225 l/s
Throw 2.0 - 4.5 m
Total Pressure Loss 23 Pa
Noise level 33 dBA



Note:

MD = Pressed aluminium

DF/DE/TD = Extruded and mitred aluminium

Exhaust & OBSS corrections		
Supply diffuser	0dB	Pa x 1.0
Supply diffuser + OBSS	+ 3dB	Pa x 1.0
Exhaust diffuser	+ 3dB	Pa x 1.1
Exhaust diffuser + OBSS	+13dB	Pa x 1.15

Performance Table

DF / MD / DE / TD		Core 41						
Supply						TD		
Total pressure drop (Pa)		150 x 150	225 x 225	300 x 300	375 x 375	450 x 450	525 x 525	600 x 600
9	I/s	34	76	135	211	304	413	540
	Min Max (m)	1.0-1.5	1.0-2.0	1.5-2.5	2.0-3.5	2.0-4.0	2.5-5.0	2.5-5.5
	L _w	-	-	-	-	23	24	25
15	I/s	45	101	180	282	405	551	720
	Min Max (m)	1.0-2.0	1.5-2.5	2.0-3.5	2.0-4.5	2.5-5.0	3.0-6.0	3.5-7.0
	L _w	-	24	27	28	30	31	32
23	I/s	56	127	225	352	506	689	900
	Min Max (m)	1.5-2.5	2.0-3.5	2.0-4.5	2.5-5.5	3.5-6.5	4.0-8.0	4.5-8.5
	L _w	26	30	33	34	36	37	38
33	I/s	68	152	270	422	608	827	1080
	Min Max (m)	1.5-3.0	2.0-4.0	2.5-5.0	3.5-6.5	4.0-8.0	4.5-9.0	5.0-10.5
	L _w	31	35	38	39	41	42	43
43	I/s	79	177	315	492	709	964	1260
	Min Max (m)	2.0-3.5	2.0-4.5	3.0-6.0	4.0-7.5	4.5-9.0	5.0-10.5	6.0-12.0
	L _w	35	39	42	43	45	46	47

Please note: TD Tile diffuser 450 x 450 only

Selection Example DF11/300x300

Air flow rate 225 l/s Total Pressure Loss 23 Pa
Throw 4.5 - 8.5 m Noise level 35 dBA

DF / DE		Core 11						
Supply								
Total pressure drop (Pa)		150 x 150	225 x 225	300 x 300	375 x 375	450 x 450	525 x 525	600 x 600
9	I/s	34	76	135	211	304	413	540
	Min - Max (m)	1.5-2.5	2.0-4.0	2.5-5.5	3.5-6.5	3.5-7.0	4.0-8.0	4.5-8.5
	L _w	-	-	-	29	31	33	35
15	I/s	45	101	180	282	405	551	720
	Min - Max (m)	2.0-3.5	2.5-5.5	3.5-6.5	4.5-8.5	5.5-10.0	5.5-10.0	6.0-11.0
	L _w	22	26	29	31	33	35	37
23	I/s	56	127	225	352	506	689	900
	Min - Max (m)	2.0-4.5	3.5-6.5	4.5-8.5	5.5-11.0	6.5-13.0	6.5-13.0	7.0-14.0
	L _w	28	32	35	37	39	41	44
33	I/s	68	152	270	422	608	827	1080
	Min - Max (m)	2.5-5.5	4.0-8.0	5.0-10.5	6.5-13.5	7.5-16.0	7.0-14.0	8.5-17.5
	L _w	33	37	40	42	44	46	49
43	I/s	79	177	315	492	709	964	1260
	Min - Max (m)	3.0-6.0	4.5-9.0	6.5-12.0	7.5-15.0	9.0-18.0	9.5-18.5	10.0-19.0
	L _w	37	41	44	46	49	52	55

Louvred Face Diffusers

DF / DE core 12 / 13

Selection Criteria

Ceiling height 2.7 m

Temperature differential -10K

Radius of diffusion - Minimum and maximum throw which results in an average air velocity within the occupied zone of 0.25m/s and 0.10m/s respectively.

Noise level is based on diffuser sound power level less 8dB room absorption.

Selection Example DF12/450x150

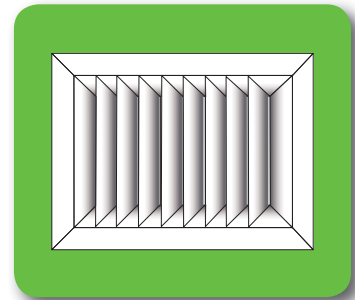
Air flow rate 169 l/s

Throw 4.0 - 8.0 m

Total Pressure Loss 23 Pa

Noise level 34 dBA

Exhaust & OBSS corrections		
Supply diffuser	0dB	Pa x 1.0
Supply diffuser + OBSS	+ 3dB	Pa x 1.0
Exhaust diffuser	+ 3dB	Pa x 1.1
Exhaust diffuser + OBSS	+13dB	Pa x 1.15



Performance Table

DF / DE		Core 12  Core 13 										
Supply												
Total pressure drop (Pa)		225 x 150	300 x 150	375 x 150	450 x 150	525 x 150	600 x 150	300 x 225	375 x 225	450 x 225	525 x 225	600 x 225
9	l/s	51	67	84	101	118	135	101	127	153	177	203
core 12	Min - Max (m)	2.0-3.5	2.5-4.0	2.5-4.5	3.0-5.0	3.5-5.5	4.0-6.0	2.5-5.0	3.0-5.5	3.5-6.0	4.0-7.0	4.5-8.0
core 13	Min - Max (m)	2.0-3.5	2.0-3.5	2.0-4.0	2.5-5.0	3.0-5.5	4.0-6.0	2.5-5.0	2.5-5.5	3.0-6.0	3.5-6.5	4.0-7.0
	L _w	-	-	-	20	21	22	20	20	21	23	25
15	l/s	68	90	113	135	158	180	135	169	203	237	271
core 12	Min - Max (m)	2.0-4.5	2.5-5.0	2.7-6.0	3.0-7.0	3.5-7.5	4.0-8.0	3.0-6.0	3.5-6.5	4.0-7.0	4.5-8.0	5.0-9.0
core 13	Min - Max (m)	2.0-4.5	2.5-5.0	2.5-6.0	3.0-6.0	3.5-7.0	4.5-9.0	3.0-6.0	3.5-6.5	4.0-7.0	4.5-8.0	5.0-9.0
	L _w	24	27	27	28	29	30	28	28	29	30	31
23	l/s	84	113	140	169	197	225	169	211	253	295	337
core 12	Min - Max (m)	2.5-5.5	3.0-6.0	3.5-7.0	4.0-8.0	4.5-9.0	5.0-10.0	4.0-8.0	4.5-8.5	5.0-9.0	5.5-10.0	6.0-12.0
core 13	Min - Max (m)	2.5-5.5	3.0-6.0	3.5-6.5	4.0-7.5	4.5-8.0	5.0-10.0	4.0-7.5	4.5-8.5	5.0-10.0	5.5-11.0	6.0-12.0
	L _w	30	33	33	34	35	36	33	34	35	36	37
33	l/s	101	135	169	202	236	270	202	253	303	354	404
core 12	Min - Max (m)	3.5-6.5	4.0-7.0	4.5-8.5	5.0-10.0	5.5-10.5	6.0-11.0	4.5-9.0	5.0-9.5	5.5-10.0	6.0-12.0	7.0-14.0
core 13	Min - Max (m)	3.5-6.5	4.0-7.5	4.0-8.0	4.5-9.0	5.0-11.0	6.0-12.0	4.5-9.0	5.0-10.0	5.5-11.0	6.0-12.0	7.0-14.0
	L _w	35	38	38	39	40	41	38	39	40	41	42
43	l/s	118	158	197	236	275	315	236	295	354	413	472
core 12	Min - Max (m)	4.0-7.5	4.5-8.0	5.5-10.0	6.0-11.0	6.5-12.0	7.0-13.0	5.0-10.5	5.5-11.0	6.0-11.5	7.0-15.0	8.0-16.0
core 13	Min - Max (m)	4.0-7.5	4.5-8.5	5.0-10.0	5.0-10.5	6.0-12.0	7.0-15.0	5.0-10.5	6.0-12.0	6.5-13.0	7.0-14.0	8.0-16.0
	L _w	39	42	42	43	44	46	43	43	44	45	46

Total pressure drop (Pa)		375 x 300	450 x 300	525 x 300	600 x 300	450 x 375	525 x 375	600 x 375	525 x 450	600 x 450	600 x 525
9	l/s	169	203	236	271	253	296	339	354	406	474
core 12	Min - Max (m)	2.5-6.0	3.0-6.5	3.5-7.0	4.0-8.0	3.0-6.5	3.5-7.0	4.0-8.0	3.0-7.0	4.0-8.0	3.0-8.5
core 13	Min - Max (m)	2.5-6.0	3.5-6.5	4.0-7.0	4.5-7.5	3.0-6.5	3.5-7.0	4.0-7.5	3.5-7.5	4.0-8.0	3.0-8.5
	L _w	21	23	24	25	23	24	25	24	25	26
15	l/s	225	270	315	360	338	394	450	472	540	629
core 12	Min - Max (m)	4.0-8.0	4.5-9.0	5.0-10.0	6.0-11.0	4.5-9.0	5.0-10.0	6.0-11.0	5.0-9.5	6.0-11.0	6.0-11.0
core 13	Min - Max (m)	4.0-8.0	4.5-8.5	5.0-9.0	5.5-10.0	4.5-9.0	5.0-10.0	5.5-11.0	5.0-10.0	6.0-11.0	6.0-11.0
	L _w	29	30	32	33	30	31	33	31	32	33
23	l/s	281	338	394	441	422	492	562	591	675	785
core 12	Min - Max (m)	5.0-10.0	5.5-11.0	6.0-12.0	7.0-13.0	5.5-11.0	6.0-12.0	7.0-13.0	6.0-12.0	7.0-13.0	7.0-14.0
core 13	Min - Max (m)	5.0-10.0	5.0-10.5	5.5-11.5	6.0-12.0	5.5-11.0	6.0-12.0	6.5-13.0	6.5-12.5	7.0-13.0	7.0-14.0
	L _w	35	37	38	39	36	37	38	37	38	40
33	l/s	338	405	473	540	506	591	674	709	810	942
core 12	Min - Max (m)	6.0-12.0	6.5-13.0	7.0-15.0	8.0-16.0	6.5-13.0	7.0-14.0	8.0-16.0	7.0-14.5	8.0-16.0	9.0-18.0
core 13	Min - Max (m)	6.0-11.5	6.5-13.0	7.0-14.0	7.5-15.0	6.5-13.0	7.0-14.0	7.5-15.0	7.5-15.0	8.0-16.0	8.5-17.5
	L _w	40	41	42	44	41	42	44	42	43	45
43	l/s	394	473	551	630	590	689	788	827	945	1103
core 12	Min - Max (m)	7.0-13.5	7.5-15.0	8.0-16.0	9.0-18.0	7.5-15.0	8.0-16.0	9.0-18.0	8.5-16.0	9.0-18.0	10.0-20.0
core 13	Min - Max (m)	7.0-13.5	7.5-15.0	8.0-16.0	9.0-18.0	7.5-15.0	8.0-16.0	9.0-17.0	9.0-16.5	9.5-18.0	10.0-20.0
	L _w	44	45	46	47	45	46	47	46	47	49

Louvred Face Diffusers

DF / DE core 21 / 25

Selection Criteria

Ceiling height 2.7 m

Temperature differential -10K

Radius of diffusion - Minimum and maximum throw which results in an average air velocity within the occupied zone of 0.25m/s and 0.10m/s respectively.

Noise level is based on diffuser sound power level less 8dB room absorption.

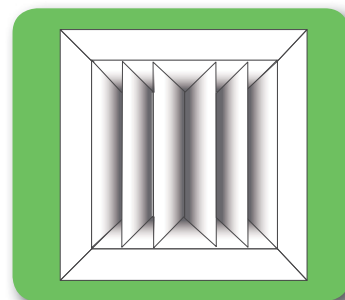
Selection Example DF21/300x300

Air flow rate 225 l/s

Throw 3.0 - 6.0 m

Total Pressure Loss 23 Pa

Noise level 34 dBA



Performance Table

DF / DE		Core 21						
Supply								
		150	225	300	375	450	525	600
		x 150	x 225	x 300	x 375	x 450	x 525	x 600
9	I/s	34	76	135	211	304	413	540
	Min Max (m)	1.0-2.0	1.5-2.5	2.0-3.5	2.5-4.5	2.5-6.0	3.0-6.5	3.5-7.0
	L _w	-	-	-	23	24	26	28
15	I/s	45	101	180	282	405	551	720
	Min Max (m)	1.0-2.5	2.0-3.5	2.5-5.0	3.0-6.0	3.5-7.5	4.0-8.0	4.5-8.5
	L _w	-	25	28	30	31	33	35
23	I/s	56	127	225	352	506	689	900
	Min Max (m)	1.5-3.0	2.5-5.0	3.0-6.0	4.0-7.5	4.5-9.0	5.0-10.0	5.5-10.5
	L _w	27	31	34	36	37	39	41
33	I/s	68	152	270	422	608	827	1080
	Min Max (m)	2.0-3.5	2.5-5.5	3.5-7.5	5.0-9.5	5.5-11.0	6.5-13.0	6.5-13.0
	L _w	32	36	39	41	42	43	45
43	I/s	79	177	315	492	709	964	1260
	Min Max (m)	2.0-4.5	3.0-6.0	4.5-8.5	5.5-11.0	6.5-13.0	7.5-15.0	7.5-15.0
	L _w	36	40	43	45	46	48	49

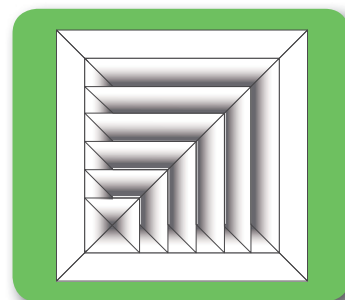
Selection Example DF25/300x300

Air flow rate 225 l/s

Throw 3.0 - 6.0 m

Total Pressure Loss 23 Pa

Noise level 34 dBA



Performance Table

DF / DE		Core 25						
Supply								
		150	225	300	375	450	525	600
		x 150	x 225	x 300	x 375	x 450	x 525	x 600
9	I/s	34	76	135	211	304	413	540
	Min Max (m)	1.0-2.0	1.5-2.5	2.0-3.5	2.5-4.5	2.5-6.0	3.0-6.5	3.0-7.0
	L _w	-	-	20	23	24	25	26
15	I/s	45	101	180	282	405	551	720
	Min Max (m)	1.0-2.5	2.0-3.5	2.5-5.0	3.0-6.0	3.5-7.5	4.0-8.0	4.0-9.0
	L _w	-	25	28	30	31	32	33
23	I/s	56	127	225	352	506	689	900
	Min Max (m)	1.5-3.0	2.5-5.0	3.0-6.0	4.0-7.5	4.5-9.0	5.0-10.0	5.0-11.0
	L _w	27	31	34	36	37	38	39
33	I/s	68	152	270	422	608	827	1080
	Min Max (m)	2.0-3.5	2.5-5.5	3.5-7.5	5.0-9.5	5.5-11.0	6.0-12.0	6.0-13.0
	L _w	32	36	39	41	42	43	44
43	I/s	79	177	315	492	709	964	1260
	Min Max (m)	2.0-4.5	3.0-6.0	4.5-8.5	5.5-11.0	6.5-13.0	7.0-14.0	7.0-15.0
	L _w	36	40	43	45	46	47	48

Louvred Face Diffusers

DF / DE core 22 / 23

Selection Criteria

Ceiling height 2.7 m

Temperature differential -10K

Radius of diffusion - Minimum and maximum throw which results in an average air velocity within the occupied zone of 0.25m/s and 0.10m/s respectively.

Noise level is based on diffuser sound power level less 8dB room absorption.

Selection Example DF22/450x150

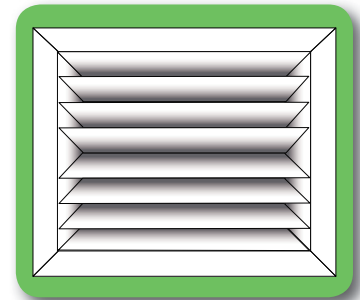
Air flow rate 169 l/s

Throw 3.0 - 5.5 m

Total Pressure Loss 23 Pa

Noise level 33 dBA

Exhaust & OBSS corrections		
Supply diffuser	0dB	Pa x 1.0
Supply diffuser + OBSS	+ 3dB	Pa x 1.0
Exhaust diffuser	+ 3dB	Pa x 1.1
Exhaust diffuser + OBSS	+13dB	Pa x 1.15



DF - core 23

Performance Table

DF / DE		Core 22						Core 23					
Supply													
Total pressure drop (Pa)		225 x 150	300 x 150	375 x 150	450 x 150	525 x 150	600 x 150	300 x 225	375 x 225	450 x 225	525 x 225	600 x 225	
9	l/s	51	67	84	101	118	135	101	127	153	177	203	
core 22	Min - Max (m)	1.0-2.5	1.5-2.5	1.5-3.0	2.0-3.0	2.5-3.5	3.0-4.0	2.0-3.5	2.0-3.5	2.5-4.0	3.0-4.5	3.5-5.0	
core 23	Min - Max (m)	1.0-2.5	1.5-2.5	1.5-3.0	2.0-3.5	2.5-4.0	3.0-5.0	2.0-3.5	2.0-4.0	2.5-4.0	3.0-4.5	3.5-5.0	
	L _w	-	-	-	-	20	21	-	-	20	21	22	
15	l/s	68	90	113	135	158	180	135	169	203	237	271	
core 22	Min - Max (m)	1.5-3.0	2.0-3.5	2.5-4.0	3.0-4.5	3.5-5.0	4.0-5.5	2.0-4.5	2.5-5.0	3.0-5.5	3.5-6.0	4.0-6.5	
core 23	Min - Max (m)	1.5-3.0	2.0-3.5	2.0-4.0	2.5-4.5	3.0-5.0	3.5-6.0	2.0-4.5	2.5-5.0	3.0-5.5	3.5-6.0	4.0-7.0	
	L _w	23	25	26	27	28	29	27	28	28	29	30	
23	l/s	84	113	140	169	197	225	169	211	253	295	337	
core 22	Min - Max (m)	2.0-3.5	2.0-4.5	2.5-5.0	3.0-5.5	3.5-6.0	4.0-7.0	2.5-5.0	3.0-6.0	3.5-6.5	4.0-7.0	4.5-8.0	
core 23	Min - Max (m)	2.0-3.5	2.0-4.5	2.5-5.0	3.0-5.5	3.5-6.0	4.0-7.0	2.5-5.5	3.0-6.0	3.5-6.5	3.5-7.5	4.5-9.0	
	L _w	29	31	32	33	34	35	33	34	34	35	36	
33	l/s	101	135	169	202	236	270	202	253	303	354	404	
core 22	Min - Max (m)	2.0-4.5	2.5-5.0	3.0-5.0	3.5-6.0	4.0-6.5	4.5-8.0	3.5-6.5	3.5-7.5	4.0-8.0	4.5-9.0	5.0-10.0	
core 23	Min - Max (m)	2.0-4.5	2.5-5.0	3.0-6.0	3.5-6.5	4.0-7.0	4.5-8.0	3.5-6.5	3.5-7.5	4.0-8.0	4.5-8.5	5.5-11.0	
	L _w	34	36	37	38	39	40	38	39	39	41	42	
43	l/s	118	158	197	236	275	315	236	295	354	413	472	
core 22	Min - Max (m)	2.5-5.0	3.0-6.0	3.5-6.5	4.0-7.0	4.5-8.0	5.0-9.0	4.0-7.5	4.5-8.5	5.0-9.0	5.5-10.0	6.0-11.0	
core 23	Min - Max (m)	2.5-5.0	3.0-6.0	3.5-7.0	4.0-7.5	4.5-8.0	5.0-9.0	4.0-7.5	4.0-8.5	5.0-9.0	5.0-10.0	7.0-13.0	
	L _w	38	40	41	42	43	44	42	43	43	45	46	

Total pressure drop (Pa)		375 x 300	450 x 300	525 x 300	600 x 300	450 x 375	525 x 375	600 x 375	525 x 450	600 x 450	600 x 525	
9	l/s	169	203	236	271	253	296	339	354	406	474	
core 22	Min - Max (m)	2.0-4.0	2.5-4.5	3.5-5.0	3.5-5.5	2.5-5.0	3.0-5.5	3.5-6.0	2.5-5.0	3.0-5.5	4.0-6.0	
core 23	Min - Max (m)	2.0-4.0	2.0-4.5	2.5-5.0	3.0-6.0	2.5-5.0	3.0-6.0	3.5-6.5	2.5-5.0	3.0-5.5	3.0-5.5	
	L _w	21	23	24	25	23	24	25	24	25	26	
15	l/s	225	270	315	360	338	394	450	472	540	629	
core 22	Min - Max (m)	2.5-5.5	3.0-6.0	3.5-6.5	4.0-7.0	3.0-6.5	3.5-7.0	4.0-8.0	3.0-6.5	4.0-7.0	5.0-8.0	
core 23	Min - Max (m)	2.5-6.0	3.0-6.0	3.5-6.5	4.0-7.0	3.5-6.5	4.0-7.0	4.5-8.0	3.0-6.5	3.5-7.0	4.0-8.0	
	L _w	29	30	32	33	30	31	33	31	32	33	
23	l/s	281	338	394	441	422	492	562	591	675	785	
core 22	Min - Max (m)	3.5-7.0	4.0-7.5	4.5-8.0	5.0-9.0	4.0-8.5	4.5-9.0	5.0-10.0	4.0-8.5	5.0-9.0	5.5-10.0	
core 23	Min - Max (m)	3.5-7.0	4.0-8.0	4.5-9.0	5.0-10.0	4.5-8.5	5.0-9.0	5.5-10.0	4.0-8.5	4.5-9.0	5.0-10.0	
	L _w	34	37	38	39	36	37	38	37	38	40	
33	l/s	338	405	473	540	506	591	674	709	810	942	
core 22	Min - Max (m)	4.0-8.0	4.5-9.0	5.0-10.0	6.0-12.0	5.0-9.5	5.5-10.0	6.0-11.0	5.0-9.5	6.0-11.0	6.5-12.0	
core 23	Min - Max (m)	4.0-8.0	4.5-9.0	5.0-10.0	5.5-12.0	5.0-10.0	5.5-11.0	6.0-12.0	5.0-9.5	5.5-10.0	6.0-11.0	
	L _w	39	41	42	44	41	42	44	42	43	45	
43	l/s	394	473	551	630	590	689	788	827	945	1103	
core 22	Min - Max (m)	5.0-9.5	5.5-10.0	6.0-12.0	7.0-14.0	6.0-11.0	6.5-12.0	7.0-13.0	6.0-11.5	7.0-13.0	8.0-14.0	
core 23	Min - Max (m)	5.0-9.5	5.5-10.5	6.0-12.0	7.0-14.0	6.0-12.0	7.0-13.0	7.5-14.0	6.0-12.0	7.0-13.0	7.0-14.0	
	L _w	44	45	46	47	45	46	47	46	47	49	

Louvred Face Diffusers

DF / DE core 26 / 27

Selection Criteria

Ceiling height 2.7 m

Temperature differential -10K

Radius of diffusion - Minimum and maximum throw which results in an average air velocity within the occupied zone of 0.25m/s and 0.10m/s respectively.

Noise level is based on diffuser sound power level less 8dB room absorption.

Selection Example DF26/450x150

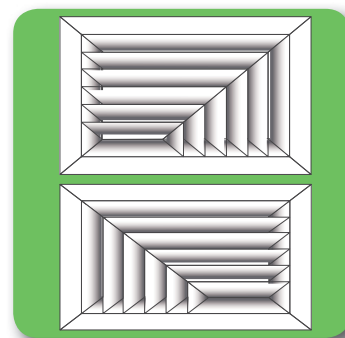
Air flow rate 169 l/s

Short side throw 2.5 - 4.0 m

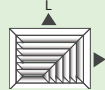
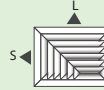
Long side throw 3.5 - 6.5 m

Total Pressure Loss 23 Pa

Noise level 32 dBA



Performance Table

DF / DE		Core 26											Core 27											S = Short side throw L = Long side throw	
Supply																									
Total pressure drop (Pa)		225 x 150	300 x 150	375 x 150	450 x 150	525 x 150	600 x 150	300 x 225	375 x 225	450 x 225	525 x 225	600 x 225													
9	I/s	51	67	84	101	118	135	101	127	153	177	203													
	S Min - Max (m)	1.0-2.0	1.0-2.0	1.0-2.0	1.5-2.5	2.0-3.0	2.5-3.5	1.5-3.0	2.0-3.5	2.5-4.0	3.0-4.0	3.0-5.0													
	L Min - Max (m)	1.5-2.5	2.0-3.5	2.0-4.0	2.5-4.5	2.5-5.0	3.0-5.5	2.0-4.0	2.5-4.5	3.0-5.0	3.5-5.5	3.5-6.0													
	L _w	-	-	-	-	-	20	-	-	20	21	22													
15	I/s	68	90	113	135	158	180	135	169	203	237	271													
	S Min - Max (m)	1.0-2.5	1.0-2.5	1.0-2.5	1.5-3.0	2.0-3.5	2.5-3.5	2.0-4.0	2.5-4.5	3.0-5.0	3.0-5.5	3.0-6.0													
	L Min - Max (m)	2.0-3.5	2.0-4.5	2.5-5.0	3.0-5.5	3.0-6.0	3.5-6.5	2.5-5.0	3.0-5.5	3.5-6.0	4.0-7.0	3.5-7.0													
	L _w	23	25	25	26	27	28	27	28	28	29	30													
23	I/s	84	113	140	169	197	225	169	211	253	295	337													
	S Min - Max (m)	2.0-3.5	2.0-3.5	2.0-3.5	2.5-4.0	3.0-4.5	3.5-5.0	2.5-5.0	3.0-5.5	3.5-6.0	4.0-7.0	4.0-8.0													
	L Min - Max (m)	2.0-4.5	2.5-5.0	3.0-6.0	3.5-6.5	4.0-7.0	4.0-8.0	2.5-6.0	3.0-6.5	3.5-7.0	4.0-8.0	4.5-9.0													
	L _w	29	31	31	32	34	35	33	34	34	35	36													
33	I/s	101	135	169	202	236	270	202	253	303	354	404													
	S Min - Max (m)	2.0-4.0	2.0-4.0	2.0-4.0	2.5-4.5	3.5-5.0	3.5-5.5	2.5-6.0	3.0-6.5	3.5-7.0	4.0-8.0	4.5-9.0													
	L Min - Max (m)	2.5-5.0	3.5-6.5	4.5-7.5	4.5-8.0	5.0-8.0	5.5-9.5	3.5-7.5	4.0-8.0	4.5-9.0	5.0-10.0	5.5-11.0													
	L _w	34	36	37	38	39	40	38	39	39	41	42													
43	I/s	118	158	197	236	275	315	236	295	354	413	472													
	S Min - Max (m)	2.0-4.5	2.0-4.5	2.0-4.5	2.5-5.0	3.0-5.5	3.5-6.0	3.5-6.5	4.0-7.0	4.5-8.0	5.0-9.0	5.5-10.0													
	L Min - Max (m)	3.0-6.0	4.0-7.5	4.5-8.5	5.5-9.0	5.5-10.0	6.0-11.0	4.5-8.0	5.0-9.0	5.5-9.0	6.0-11.0	7.0-12.0													
	L _w	38	40	41	42	43	44	42	43	43	45	46													

Total pressure drop (Pa)		375 x 300	450 x 300	525 x 300	600 x 300	450 x 375	525 x 375	600 x 375
9	I/s	169	203	236	271	253	296	339
	S Min - Max (m)	2.0-4.0	2.0-4.0	2.5-4.5	2.5-5.0	2.5-4.5	2.5-5.0	3.0-6.0
	L Min - Max (m)	2.5-5.0	2.5-5.0	3.0-5.5	3.0-6.0	3.0-5.5	3.0-6.0	3.5-6.5
	L _w	20	21	22	23	23	24	25
15	I/s	225	270	315	360	338	394	450
	S Min - Max (m)	2.5-5.0	2.5-5.0	3.0-5.5	3.0-6.0	3.0-5.5	3.0-6.0	3.5-7.0
	L Min - Max (m)	3.0-6.0	3.5-7.5	4.0-7.5	4.5-8.5	4.0-7.5	4.5-8.0	5.0-8.5
	L _w	28	29	31	32	30	31	32
23	I/s	281	338	394	441	422	492	562
	S Min - Max (m)	3.0-6.0	3.0-6.0	3.5-6.5	4.0-7.0	3.5-6.5	4.0-7.0	5.0-8.0
	L Min - Max (m)	4.5-7.0	4.5-9.5	5.0-10.0	5.5-11.0	5.0-10.0	6.0-11.0	6.5-12.0
	L _w	34	35	37	38	36	37	37
33	I/s	338	405	473	540	506	591	674
	S Min - Max (m)	4.0-7.5	4.0-7.5	4.5-8.5	5.0-9.0	4.5-8.5	5.0-9.0	6.0-10.0
	L Min - Max (m)	4.5-9.0	5.0-10.5	5.5-11.5	6.0-12.0	5.5-11.5	6.0-13.0	7.0-14.0
	L _w	39	40	41	43	41	43	42
43	I/s	394	473	551	630	590	689	788
	S Min - Max (m)	4.5-8.5	4.5-8.5	5.0-9.5	6.0-12.0	5.0-9.5	6.0-11.0	7.0-12.0
	L Min - Max (m)	5.0-10.5	6.5-12.0	6.5-13.0	8.0-15.0	6.5-13.0	7.0-15.0	8.0-16.0
	L _w	43	44	45	46	45	47	46

Louvred Face Diffusers

DF / DE core 31

Selection Criteria

Ceiling height 2.7 m

Temperature differential -10K

Radius of diffusion - Minimum and maximum throw which results in an average air velocity within the occupied zone of 0.25m/s and 0.10m/s respectively.

Noise level is based on diffuser sound power level less 8dB room absorption.

Selection Example DF31/300x300

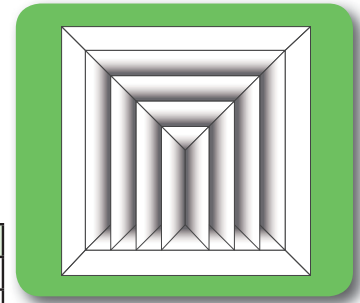
Air flow rate 225 l/s

Short side throw 2.0 - 4.5 m

Long side throw 2.5 - 5.0 m

Total Pressure Loss 23 Pa

Noise level 33 dBA



Exhaust & OBSS corrections		
Supply diffuser	0dB	Pa x 1.0
Supply diffuser + OBSS	+ 3dB	Pa x 1.0
Exhaust diffuser	+ 3dB	Pa x 1.1
Exhaust diffuser + OBSS	+13dB	Pa x 1.15

Performance Table

DF / DE		Core 31						
Supply		 S = Short side throw L = Long side throw						
Total pressure drop (Pa)		150 x 150	225 x 225	300 x 300	375 x 375	450 x 450	525 x 525	600 x 600
9	I/s	34	76	135	211	304	413	540
	S Min - Max (m)	1.0-2.0	1.0-2.0	1.5-3.0	2.0-3.5	2.5-5.0	3.5-7.0	4.0-8.0
	L Min - Max (m)	1.0-2.0	1.0-2.5	2.0-3.5	2.0-4.0	3.5-6.5	4.5-9.0	5.5-10.0
	L _w	-	-	-	-	23	24	25
15	I/s	45	101	180	282	405	551	720
	S Min - Max (m)	1.0-2.0	1.0-2.5	2.0-4.0	2.0-4.5	2.5-5.0	3.5-7.0	4.0-8.0
	L Min - Max (m)	1.0-2.0	2.0-3.5	2.0-4.5	2.5-5.0	3.5-7.0	5.0-9.5	5.5-10.0
	L _w	-	24	27	29	30	31	32
23	I/s	56	127	225	352	506	689	900
	S Min - Max (m)	1.0-2.0	2.0-3.5	2.0-4.5	2.5-5.5	3.5-6.5	4.0-7.0	5.0-8.0
	L Min - Max (m)	1.5-2.5	2.0-4.0	2.5-5.0	3.5-6.0	4.0-8.0	5.5-9.0	5.0-10.0
	L _w	26	30	33	35	36	37	38
33	I/s	68	152	270	422	608	827	1080
	S Min - Max (m)	1.5-2.5	2.0-4.5	2.5-5.0	3.5-6.5	4.0-8.0	4.5-9.0	5.0-10.0
	L Min - Max (m)	2.0-3.5	2.5-5.5	3.5-6.5	4.0-8.0	5.0-10.0	5.5-11.0	6.0-12.0
	L _w	31	35	38	40	41	42	43
43	I/s	79	177	315	492	709	964	1260
	S Min - Max (m)	2.0-3.5	2.5-4.5	3.0-6.0	4.0-7.5	4.5-9.0	5.0-10.0	6.0-12.0
	L Min - Max (m)	2.0-4.0	2.5-6.0	4.0-7.5	5.0-9.5	6.0-11.5	6.5-12.0	7.0-14.0
	L _w	35	39	42	44	45	46	47

Louvred Face Diffusers

DF / DE core 32 / 33

Selection Criteria

Ceiling height 2.7 m

Temperature differential -10K

Radius of diffusion - Minimum and maximum throw which results in an average air velocity within the occupied zone of 0.25m/s and 0.10m/s respectively.

Noise level is based on diffuser sound power level less 8dB room absorption.

Selection Example DF32/450x150

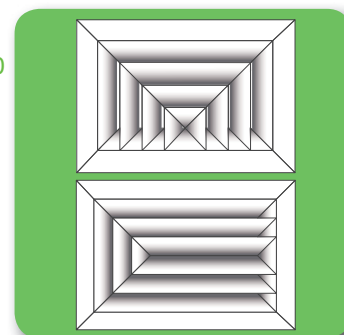
Air flow rate 169 l/s

Short side throw 1.5 - 3.0 m

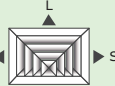
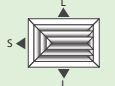
Long side throw 3.0 - 6.0 m

Total Pressure Loss 23 Pa

Noise level 31 dBA



Performance Table

DF / DE		Core 32				Core 33				S = Short side throw L = Long side throw			
Supply													
Total pressure drop (Pa)		225 x 150	300 x 150	375 x 150	450 x 150	525 x 150	600 x 150	300 x 225	375 x 225	450 x 225	525 x 225	600 x 225	
9	I/s	51	67	84	101	118	135	101	127	153	177	203	
	S Min - Max (m)	1.0-2.0	1.0-2.0	1.0-2.0	1.0-2.0	1.5-2.5	2.0-4.0	1.5-3.0	2.0-3.0	2.5-4.0	3.0-5.0	3.0-6.0	
	L Min - Max (m)	1.0-2.0	1.5-2.5	2.0-3.5	2.0-3.5	2.5-4.0	3.0-4.5	1.5-3.0	2.0-3.5	2.5-4.0	2.5-5.0	3.0-6.0	
	L _w	-	-	-	-	-	-	-	-	-	20	21	
15	I/s	68	90	113	135	158	180	135	169	203	237	271	
	S Min - Max (m)	1.0-2.0	1.0-2.0	1.0-2.0	1.0-2.0	1.5-2.5	2.0-3.0	2.0-4.0	2.5-3.5	3.0-4.0	3.5-5.0	4.0-5.5	
	L Min - Max (m)	1.0-2.5	2.0-3.5	2.0-4.5	2.5-5.0	3.0-5.5	3.5-6.0	2.0-4.0	2.0-4.5	2.5-5.0	3.0-6.0	3.5-6.5	
	L _w	20	24	25	25	26	27	25	26	27	28	29	
23	I/s	84	113	140	169	197	225	169	211	253	295	337	
	S Min - Max (m)	1.5-3.0	1.5-3.0	1.5-3.0	1.5-3.0	1.5-3.5	2.0-4.0	2.0-4.5	2.0-4.0	2.5-5.0	3.0-6.0	3.5-7.0	
	L Min - Max (m)	2.0-3.5	2.0-4.5	2.5-5.0	3.0-6.0	3.5-6.5	4.0-7.0	2.0-4.5	2.5-5.5	3.0-6.0	3.5-7.0	4.0-9.0	
	L _w	28	30	31	31	33	34	31	32	33	34	35	
33	I/s	101	135	169	202	236	270	202	253	303	354	404	
	S Min - Max (m)	2.0-3.5	2.0-3.5	2.0-3.5	2.0-3.5	2.5-4.0	3.0-4.5	2.5-5.0	2.5-5.0	3.0-6.0	3.5-7.0	4.0-8.0	
	L Min - Max (m)	2.0-4.0	2.5-5.0	3.5-6.5	4.0-7.5	4.5-8.5	5.0-9.0	2.5-5.0	3.5-6.5	4.0-7.0	4.5-9.0	5.0-10	
	L _w	33	35	36	36	37	39	36	37	38	39	40	
43	I/s	118	158	197	236	275	315	236	295	354	413	472	
	S Min - Max (m)	2.0-4.5	2.0-4.5	2.0-4.5	2.0-4.5	2.5-5.5	3.0-6.0	3.0-6.0	3.5-6.5	4.0-7.0	5.0-8.0	5.5-9.0	
	L Min - Max (m)	2.5-4.5	3.0-6.0	4.0-7.5	4.5-8.5	5.0-9.5	5.5-11.0	3.0-6.0	4.0-8.0	4.5-9.0	5.0-10.0	5.5-12.0	
	L _w	37	39	40	41	42	43	41	41	42	43	44	

Total pressure drop (Pa)		375 x 300	450 x 300	525 x 300	600 x 300	450 x 375	525 x 375	600 x 375	525 x 450	600 x 450	600 x 525
9	I/s	169	203	236	271	253	296	339	354	406	474
	S Min - Max (m)	2.0-3.5	2.0-3.5	2.5-4.0	3.0-4.5	2.0-4.0	2.5-4.5	3.0-5.0	2.5-5.0	3.0-5.5	3.0-5.5
	L Min - Max (m)	2.0-3.5	2.0-4.0	2.5-4.5	3.0-5.0	2.0-4.5	2.5-5.0	3.0-6.0	2.5-5.0	3.0-5.5	3.0-5.5
	L _w	-	20	21	22	21	23	25	24	24	25
15	I/s	225	270	315	360	338	394	450	472	540	629
	S Min - Max (m)	2.0-4.5	2.5-5.0	3.0-5.5	3.5-6.0	2.5-5.0	3.0-5.5	3.5-6.0	3.0-6.0	3.5-6.5	3.5-6.5
	L Min - Max (m)	2.5-5.0	2.5-5.0	3.0-5.5	3.5-6.0	2.5-5.5	3.0-6.0	3.5-6.5	3.5-6.5	4.0-7.0	4.0-7.0
	L _w	27	28	29	30	29	30	31	31	31	32
23	I/s	281	338	394	441	422	492	562	591	675	785
	S Min - Max (m)	2.5-5.5	2.5-6.0	3.0-6.5	3.5-7.0	3.5-6.5	4.0-7.0	4.5-7.5	4.0-7.5	4.5-8.0	4.5-8.0
	L Min - Max (m)	2.5-6.0	3.5-6.5	4.0-7.0	4.5-7.5	3.5-7.5	4.0-8.0	4.5-8.5	4.5-8.5	5.0-9.0	5.0-9.0
	L _w	33	34	35	36	35	36	37	37	37	39
33	I/s	338	405	473	540	506	591	674	709	810	942
	S Min - Max (m)	3.5-6.5	3.5-7.5	4.0-8.0	4.5-8.5	4.0-8.0	4.5-9.0	5.0-9.5	4.5-9.0	5.0-10.0	5.0-9.5
	L Min - Max (m)	3.5-7.5	4.0-8.0	4.5-8.5	5.0-9.0	4.5-8.5	5.0-9.0	5.5-10.0	5.0-10.0	5.5-11.0	5.5-10.5
	L _w	38	39	40	41	40	41	42	42	42	43
43	I/s	394	473	551	630	590	689	788	827	945	1103
	S Min - Max (m)	4.0-7.5	4.0-8.0	4.5-8.5	5.0-9.0	4.5-9.0	5.0-10.0	5.5-11.0	5.5-11.0	6.0-12.0	6.0-11.5
	L Min - Max (m)	4.0-8.0	4.5-9.0	5.0-9.5	5.5-10.0	5.0-10.0	5.5-11.0	6.0-12.0	6.0-12.0	6.5-13.0	6.5-12.5
	L _w	42	43	44	45	44	45	46	46	47	47

Louvred Face Diffusers

DF / DE core 42

Selection Criteria

Ceiling height 2.7 m

Temperature differential -10K

Radius of diffusion - Minimum and maximum throw which results in an average air velocity within the occupied zone of 0.25m/s and 0.10m/s respectively.

Noise level is based on diffuser sound power level less 8dB room absorption.

Selection Example DF42/450x150

Air flow rate 169 l/s

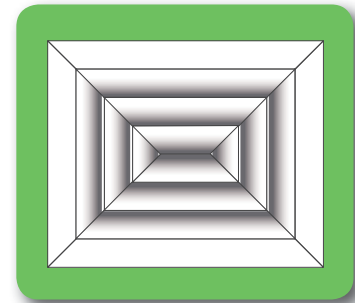
Short side throw 1.0 - 2.5 m

Long side throw 2.5 - 5.0 m

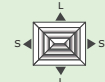
Total Pressure Loss 23 Pa

Noise level 31 dBA

Exhaust & OBSS corrections		
Supply diffuser	0dB	Pa x 1.0
Supply diffuser + OBSS	+ 3dB	Pa x 1.0
Exhaust diffuser	+ 3dB	Pa x 1.1
Exhaust diffuser + OBSS	+ 13dB	Pa x 1.15



Performance Table

DF / DE		Core 42											S = Short side throw L = Long side throw	
Supply														
Total pressure drop (Pa)		225 x 150	300 x 150	375 x 150	450 x 150	525 x 150	600 x 150	300 x 225	375 x 225	450 x 225	525 x 225	600 x 225		
9	I/s	51	67	84	101	118	135	101	127	153	177	203		
	S Min - Max (m)	1.0-1.5	1.0-1.5	1.0-1.5	1.0-1.5	1.5-2.0	2.0-2.5	1.0-2.0	1.0-2.0	1.0-2.0	1.0-2.0	1.5-2.5		
	L Min - Max (m)	1.0-2.0	1.0-2.5	1.5-3.0	1.5-3.5	2.0-4.0	2.5-4.5	1.0-2.5	1.5-3.0	2.0-3.5	2.0-4.0	2.5-4.5		
	L _w	-	-	-	-	-	-	-	-	-	-	20		
15	I/s	68	90	113	135	158	180	135	169	203	237	271		
	S Min - Max (m)	1.0-2.0	1.0-2.0	1.0-2.0	1.0-2.0	1.5-2.5	2.0-3.0	1.0-2.5	1.0-2.5	1.0-2.5	1.0-2.5	1.5-3.0		
	L Min - Max (m)	1.0-2.5	1.5-3.5	2.0-3.5	2.0-4.0	2.5-4.5	3.0-5.0	2.0-3.5	2.0-3.5	2.5-4.0	2.5-5.0	3.0-5.5		
	L _w	-	24	24	25	25	26	25	26	27	27	28		
23	I/s	84	113	140	169	197	225	169	211	253	295	337		
	S Min - Max (m)	1.0-2.5	1.0-2.5	1.0-2.5	1.0-2.5	1.5-3.0	2.0-3.5	2.0-3.5	2.0-3.5	2.0-3.5	2.0-3.5	2.5-4.0		
	L Min - Max (m)	1.5-3.5	2.0-3.5	2.0-4.5	2.5-5.0	3.0-5.5	3.5-6.0	2.0-4.5	2.0-4.5	2.5-5.0	3.0-6.0	3.5-6.5		
	L _w	28	30	30	31	32	33	31	32	32	33	34		
33	I/s	101	135	169	202	236	270	202	253	303	354	404		
	S Min - Max (m)	1.5-3.0	1.5-3.0	1.5-3.0	1.5-3.0	2.0-3.5	2.5-4.0	2.0-4.0	2.0-4.0	2.0-4.0	2.0-4.0	2.5-4.5		
	L Min - Max (m)	2.0-3.5	2.0-4.5	2.5-5.0	2.5-6.0	3.0-6.5	3.5-7.0	2.5-5.0	3.0-6.5	3.5-7.0	4.0-7.5	4.5-8.0		
	L _w	33	35	35	36	37	38	36	37	37	38	39		
43	I/s	118	158	197	236	275	315	236	295	354	413	472		
	S Min - Max (m)	2.0-3.5	2.0-3.5	2.0-3.5	2.0-3.5	2.5-4.0	3.0-4.5	2.0-4.5	2.0-4.5	2.0-4.5	2.0-4.5	2.5-5.0		
	L Min - Max (m)	2.0-4.5	2.5-5.0	3.0-6.0	3.5-6.5	4.0-7.0	4.5-7.5	2.5-6.0	3.5-7.5	4.0-8.0	4.5-8.5	5.0-9.0		
	L _w	37	39	40	40	41	42	40	41	41	42	43		

Total pressure drop (Pa)		375 x 300	450 x 300	525 x 300	600 x 300	450 x 375	525 x 375	600 x 375	525 x 450	600 x 450	600 x 525
9	I/s	169	203	236	271	253	296	339	354	406	474
	S Min - Max (m)	1.0-2.5	1.0-2.5	1.0-2.5	1.5-3.0	2.0-3.5	2.0-3.5	2.5-4.0	2.0-4.0	2.0-4.0	2.5-4.5
	L Min - Max (m)	2.0-3.5	2.0-3.5	2.0-4.5	2.5-5.0	2.0-4.0	2.0-4.5	2.5-5.0	2.5-5.0	2.5-5.0	3.0-5.5
	L _w	-	20	21	21	21	23	23	24	24	24
15	I/s	225	270	315	360	338	394	450	472	540	629
	S Min - Max (m)	2.0-3.5	2.0-3.5	2.0-3.5	2.5-4.0	2.0-4.5	2.0-4.5	2.5-5.0	2.5-5.0	2.5-5.0	3.0-5.5
	L Min - Max (m)	2.0-4.5	2.5-5.0	2.5-6.0	3.0-6.5	2.5-5.0	2.5-6.0	3.0-6.5	3.0-6.0	3.5-7.0	4.0-7.5
	L _w	27	28	29	29	29	30	30	31	31	31
23	I/s	281	338	394	441	422	492	562	591	675	785
	S Min - Max (m)	2.0-4.0	2.0-4.5	2.0-4.5	2.5-5.0	2.5-5.5	2.5-5.5	3.0-6.0	3.5-6.5	3.5-6.5	4.0-7.0
	L Min - Max (m)	2.5-5.0	3.0-6.0	3.5-6.5	4.0-7.0	3.5-6.5	3.5-7.5	4.0-8.0	4.0-7.5	4.5-8.5	5.0-9.0
	L _w	33	34	35	35	35	36	36	37	37	38
33	I/s	338	405	473	540	506	591	674	709	810	942
	S Min - Max (m)	2.5-5.0	2.5-5.0	2.5-5.0	3.0-5.5	3.5-6.5	3.5-6.5	4.0-7.0	4.0-8.0	4.0-8.0	4.5-8.5
	L Min - Max (m)	3.5-6.5	4.0-8.0	4.0-8.0	4.5-8.5	4.0-7.5	4.5-8.5	5.0-9.0	4.5-9.0	5.0-10.0	5.5-10.5
	L _w	38	39	40	40	40	41	41	42	42	42
43	I/s	394	473	551	630	590	689	788	827	945	1103
	S Min - Max (m)	3.0-6.0	3.0-6.0	3.0-6.0	3.5-5.5	4.0-7.5	4.0-7.5	4.5-8.0	4.5-9.0	4.5-9.0	5.0-9.5
	L Min - Max (m)	4.0-7.5	4.5-8.0	5.0-9.5	4.5-8.5	4.5-9.0	5.0-10.5	5.5-11.0	5.0-10.5	6.0-12.0	6.5-12.5
	L _w	42	43	44	44	44	45	45	46	47	47

Louvred Face Diffusers

DFA

Product Description

DFA Flanged adjustable diffuser for horizontal or

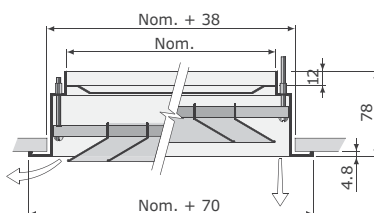
vertical projection (4 way only)

OBSS Opposed blade damper

OBLL Lever operated damper via the diffuser face

PBD Plenum box

NR/D Top entry neck reducer



Features

- Standard flanged frame style for integration with T-bar ceilings
- 2 core styles to suit required air pattern
- Lightweight aluminium construction
- Adjustable air patterns for vertical and horizontal diffusion

Finishes

PPG9010 (RAL 9010 Gloss - 80% Gloss White)

PPM9010 (RAL 9010 Matt - 20% Gloss White)

PPM9006 (RAL 9006 Matt - 30% Gloss Silver)

Other colours available on request

Weights

DFA 12.5 kg/m² face area

OBSS/ED 9.5 kg/m² face area

Sizes

DFA Minimum size - 150 x 150 duct size

Maximum size - 1200 x 600 duct size

Standard increments of 75mm only

DFA 41	Horizontal diffusion (Cones fully lowered) Δt = 10°C cooling			
	150 x 150	225 x 225	300 x 300	375 x 375
I/s	34	76	135	211
Min - Max (m)	0.5-1.0	0.5-1.5	1.5-2.5	1.5-2.5
L _w	-	-	-	-
Pa	11	11	11	11
I/s	45	101	180	282
Min - Max (m)	0.5-1.5	1.0-2.0	1.5-3.0	1.5-3.0
L _w	-	-	-	-
Pa	21	21	21	21
I/s	56	127	225	352
Min - Max (m)	1.0-2.0	1.5-2.5	1.5-3.0	2.0-4.0
L _w	-	-	-	-
Pa	32	32	32	32
I/s	68	152	270	422
Min - Max (m)	1.0-2.5	1.5-3.0	2.0-4.0	2.5-5.0
L _w	-	-	-	-
Pa	47	47	47	47
I/s	79	177	315	492
Min - Max (m)	1.5-2.5	1.5-3.0	2.5-4.5	3.0-5.5
L _w	-	-	-	20
Pa	65	65	65	65

DFA 41	Isothermal vertical projection (Cones fully raised)			
	150 x 150	225 x 225	300 x 300	375 x 375
I/s	34	76	135	211
T (m)	6.3	9.4	12.5	15.6
L _w	-	-	-	-
Pa	21	17	17	17
I/s	45	101	180	282
T (m)	8.3	12.5	16.7	20.8
L _w	-	-	-	-
Pa	37	30	30	30
I/s	56	127	225	352
T (m)	10.7	16.1	21.5	26.8
L _w	-	-	-	-
Pa	60	47	47	47
I/s	68	152	270	422
T (m)	13.5	20.5	-	-
L _w	-	-	-	20
Pa	87	67	67	67
I/s	79	177	315	492
T (m)	15.0	-	-	-
L _w	-	-	21	22
Pa	122	90	90	90

DFA 41	Heating vertical projection (Cones fully raised) Δt = 10°C heating (correct for other temp.)			
	150 x 150	225 x 225	300 x 300	375 x 375
I/s	34	76	135	211
T (m)	2.0	2.3	2.4	2.7
L _w	-	-	-	-
Pa	21	17	17	17
I/s	45	101	180	282
T (m)	2.7	3.3	3.6	3.9
L _w	-	-	-	-
Pa	37	30	30	30
I/s	56	127	225	352
T (m)	3.4	4.1	4.8	5.1
L _w	-	-	-	-
Pa	60	47	47	47
I/s	68	152	270	422
T (m)	4.1	4.7	5.8	6.2
L _w	-	-	-	21
Pa	87	67	67	67
I/s	79	177	315	492
T (m)	4.8	5.4	6.6	7.3
L _w	-	20	22	23
Pa	122	90	90	90

Terminal Velocities For Isothermal Vertical Projection			
V _t (m/s)	0.25	0.40	0.60
Factor	1.00	0.65	0.40

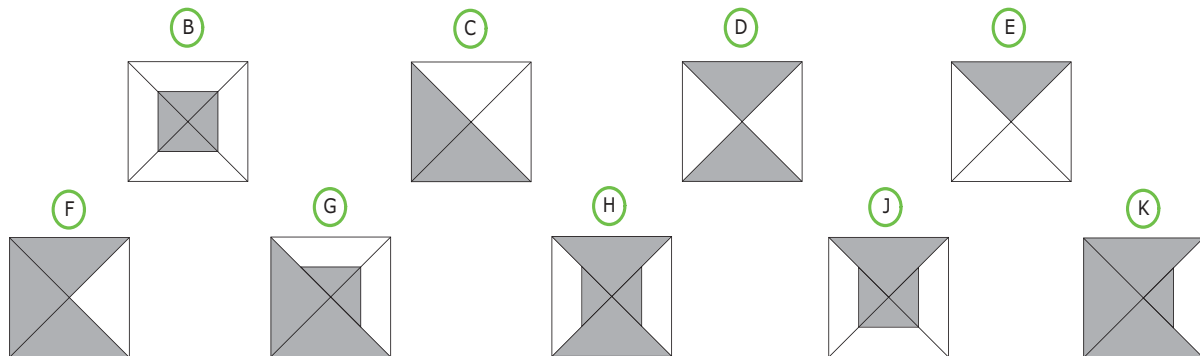
Temperature Differentials For Heating Vertical Projection						
Δt (°C)	5	10	15	20	25	30
Factor	1.5	1	0.85	0.7	0.6	0.5

ORDER EXAMPLE

DFA-41/300/300/PPM9010/OBSS

Type _____
 Duct width _____
 Duct height _____
 Finish _____
 Damper _____

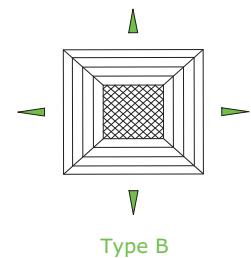
Blanking Plates (for 4 way core)



Type B core 41 - 4 way (Neck 450 x450)

UNBLANKED					
Neck Vel	1.0	1.5	2.0	2.5	3.0
Pressure	5	9	15	23	33
Volume	203	304	405	506	608
dBA Level	26	30	35	39	42
Min Rad	1.7	2.0	2.5	3.5	4.0
Max Rad	3.4	4.0	5.0	6.5	8.0

BLANK B 150 x 150					
Neck Vel	1.0	1.5	2.0	2.5	3.0
Pressure	5	9	15	23	33
Volume	180	270	360	450	540
dBA Level	25	29	34	38	41
Min Rad	1.6	2.0	2.4	3.3	3.9
Max Rad	3.3	3.9	4.9	6.3	7.6



BLANK B 225 x 225					
Neck Vel	1.0	1.5	2.0	2.5	3.0
Pressure	5	9	15	23	33
Volume	152	228	304	380	456
dBA Level	25	29	33	37	40
Min Rad	1.5	1.7	2.2	2.7	3.7
Max Rad	2.9	3.7	4.7	5.7	6.8

Blank B 300 x 300					
Neck Vel	1.0	1.5	2.0	2.5	3.0
Pressure	5	9	15	23	33
Volume	113	169	225	281	338
dBA Level	-	26	30	34	38
Min Rad	1.5	1.7	2.0	2.2	2.8
Max Rad	2.0	2.8	3.8	4.8	5.5

BLANK B 375 x 375					
Neck Vel	1.0	1.5	2.0	2.5	3.0
Pressure	5	9	15	23	33
Volume	62	93	124	155	186
dBA Level	-	-	27	30	33
Min Rad	0.9	1.2	1.7	2.0	2.2
Max Rad	1.7	2.2	2.8	3.8	4.5

Louvred Face Diffusers

Blanking Plates (for 4 way core)

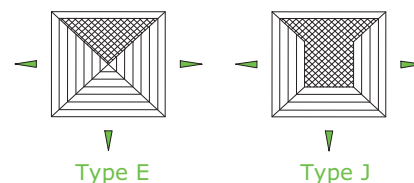
Type E & J core 41 - 3 way (Neck 450 x 450)

BLANK E					
Neck Vel	1.0	1.5	2.0	2.5	3.0
Pressure	5	9	15	23	33
Volume	152	228	304	380	456
dBA Level	25	30	34	38	40
Min Rad	2.2	2.5	2.7	3.3	4.0
Max Rad	3.7	4.5	5.5	7.0	8.1

BLANK J 225 x 225					
Neck Vel	1.0	1.5	2.0	2.5	3.0
Pressure	5	9	15	23	33
Volume	114	171	228	285	342
dBA Level	-	28	31	34	37
Min Rad	1.3	1.7	2.0	2.5	3.1
Max Rad	2.4	3.2	4.1	4.8	5.5

BLANK J 150 x 150					
Neck Vel	1.0	1.5	2.0	2.5	3.0
Pressure	5	9	15	23	33
Volume	135	203	270	338	405
dBA Level	-	29	32	36	39
Min Rad	1.4	1.8	2.2	2.7	3.7
Max Rad	2.7	3.6	4.7	5.7	6.7

BLANK J 300 x 300					
Neck Vel	1.0	1.5	2.0	2.5	3.0
Pressure	5	9	15	23	33
Volume	84	127	169	211	253
dBA Level	-	26	30	34	36
Min Rad	1.2	1.5	1.9	2.3	2.5
Max Rad	2.2	2.8	3.4	4.0	4.4



BLANK J 375 x 375					
Neck Vel	1.0	1.5	2.0	2.5	3.0
Pressure	5	9	15	23	33
Volume	46	70	93	116	139
dBA Level	-	-	27	31	35
Min Rad	0.8	1.0	1.4	1.8	2.3
Max Rad	1.7	2.0	2.9	3.6	4.7

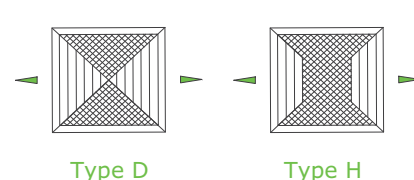
Type D & H core 41 - 2 way opposite (Neck 450 x 450)

BLANK D					
Neck Vel	1.0	1.5	2.0	2.5	3.0
Pressure	5	9	15	23	33
Volume	101	152	203	253	304
dBA Level	-	28	32	36	39
Min Rad	1.8	2.2	2.7	3.5	4.3
Max Rad	3.7	4.0	5.5	6.7	8.5

BLANK H 225 x 225					
Neck Vel	1.0	1.5	2.0	2.5	3.0
Pressure	5	9	15	23	33
Volume	76	114	152	190	228
dBA Level	-	26	30	34	38
Min Rad	1.2	1.8	2.0	2.5	3.1
Max Rad	2.1	3.0	4.2	5.7	6.5

BLANK H 150 x 150					
Neck Vel	1.0	1.5	2.0	2.5	3.0
Pressure	5	9	15	23	33
Volume	90	135	180	225	270
dBA Level	-	27	31	35	38
Min Rad	1.5	2.0	2.2	2.5	3.5
Max Rad	2.4	3.5	5.0	6.0	7.5

BLANK H 300 x 300					
Neck Vel	1.0	1.5	2.0	2.5	3.0
Pressure	5	9	15	23	33
Volume	56	84	113	141	169
dBA Level	-	25	29	33	36
Min Rad	1.0	1.5	2.0	2.5	2.7
Max Rad	1.9	2.5	3.5	5.0	5.5



BLANK H 375 x 375					
Neck Vel	1.0	1.5	2.0	2.5	3.0
Pressure	5	9	15	23	33
Volume	31	46	62	77	93
dBA Level	-	-	25	30	34
Min Rad	0.8	1.2	1.5	2.0	2.3
Max Rad	1.7	2.2	3.0	4.0	4.5

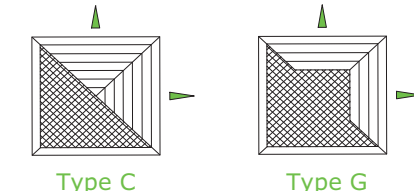
Type C & G core 41 - 2 way corner (Neck 450 x 450)

BLANK C					
Neck Vel	1.0	1.5	2.0	2.5	3.0
Pressure	5	9	15	23	33
Volume	101	152	203	253	304
dBA Level	-	28	32	36	39
Min Rad	1.8	2.2	2.7	3.5	4.3
Max Rad	3.7	4.0	5.5	6.7	8.5

BLANK G 225 x 225					
Neck Vel	1.0	1.5	2.0	2.5	3.0
Pressure	5	9	15	23	33
Volume	76	114	152	190	228
dBA Level	-	26	30	34	38
Min Rad	1.2	1.8	2.0	2.5	3.1
Max Rad	2.1	3.0	4.2	5.7	6.5

BLANK G 150 x 150					
Neck Vel	1.0	1.5	2.0	2.5	3.0
Pressure	5	9	15	23	33
Volume	90	135	180	225	270
dBA Level	-	27	31	35	38
Min Rad	1.5	2.0	2.2	2.5	3.5
Max Rad	2.4	3.5	5.0	6.0	7.5

BLANK G 300 x 300					
Neck Vel	1.0	1.5	2.0	2.5	3.0
Pressure	5	9	15	23	33
Volume	56	84	113	141	169
dBA Level	-	25	29	33	36
Min Rad	1.0	1.5	2.0	2.5	2.7
Max Rad	1.9	2.5	3.5	5.0	5.5



BLANK G 375 x 375					
Neck Vel	1.0	1.5	2.0	2.5	3.0
Pressure	5	9	15	23	33
Volume	31	46	62	77	93
dBA Level	-	-	25	30	34
Min Rad	0.8	1.2	1.5	2.0	2.3
Max Rad	1.7	2.2	3.0	4.0	4.5

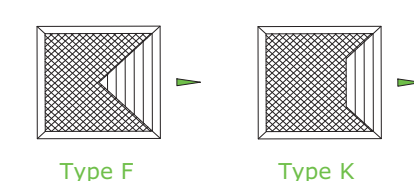
Type F & K core 41 - 1 way (Neck 450 x 450)

BLANK F					
Neck Vel	1.0	1.5	2.0	2.5	3.0
Pressure	5	9	15	23	33
Volume	51	76	101	127	152
dBA Level	-	26	29	33	36
Min Rad	1.5	2.0	2.5	3.5	4.0
Max Rad	3.0	4.0	5.5	6.5	8.0

BLANK K 225 x 225					
Neck Vel	1.0	1.5	2.0	2.5	3.0
Pressure	5	9	15	23	33
Volume	38	57	76	95	114
dBA Level	-	-	27	30	34
Min Rad	1.2	1.8	2.3	3.1	3.5
Max Rad	2.5	3.7	4.8	5.8	6.7

BLANK K 150 x 150					
Neck Vel	1.0	1.5	2.0	2.5	3.0
Pressure	5	9	15	23	33
Volume	45	68	90	113	135
dBA Level	-	24	29	32	34
Min Rad	1.4	1.9	2.4	3.3	3.8
Max Rad	2.8	3.9	5.3	6.2	7.6

BLANK K 300 x 300					
Neck Vel	1.0	1.5	2.0	2.5	3.0
Pressure	5	9	15	23	33
Volume	28	42	56	70	84
dBA Level	-	-	26	30	33
Min Rad	1.1	1.6	2.2	2.8	3.1
Max Rad	2.3	3.5	4.2	5.3	6.4



BLANK K 375 x 375					
Neck Vel	1.0	1.5	2.0	2.5	3.0
Pressure	5	9	15	23	33
Volume	15	23	31	39	46
dBA Level	-	-	-	27	31
Min Rad	0.8	1.3	1.9	2.1	2.5
Max Rad	1.8	2.3	3.4	4.4	5.3

Plenum Box to suit D Diffusers

PBD / NRD Neck Reducer

Introduction

Correct selection and sizing of distribution plenum boxes and neck reducers is critical because terminal air resistance is very low relative to the distribution ductwork resistance. It is therefore recommended that, whenever possible, terminals are served by low velocity stub ducts from branch ducting systems fitted with correct balancing controls.

Where it is necessary to specify and use plenums a generous allowance for commissioned noise generation should be made. A similar effect results from use of neck reducers with circular duct connections due to the reduced duct area causing generally higher velocities and therefore increasing risk of noise generation

Product Description

PBD	Plenum box for Louvre-faced Diffusers (DF, DE, DFA, DF-T, DTR)
PBD/LL	Low-Line Plenum box for Louvre-faced Diffusers (DF, DE, DFA, DF-T, DTR)
NRD	Neck Reducer for Louvre-faced Diffusers
SE	Side Entry spigot
TE	Top Entry spigot
CC	Circular Connection
RC	Rectangular Connection
FO	Flat Oval Connection
FDC	Cord-operated Flap Damper (optional)
FDQ	Quadrant-operated Flap Damper (optional)
LINED	6mm acoustic lining (optional) reaction to fire class C-s3-d0 to EN 13501-1: 2007
BFL	Internal perforated baffle plate (optional)
BLACK	Plenum painted black to prevent through vision (optional)

Features

- Plated steel with stitched seam joints
- Available in High-Line or Low-Line to accommodate larger spigot sizes
- 1 to 4 connections – Circular, Rectangular or Flat Oval (reduced plenum height)
- Side or Top Entry spigots with optional airflow control damper
- Oblong holes on top plate for easy drop rod installation
- Internal baffle plate for optimum air distribution (optional)

Finish

PBD/NRD Galvanised sheet steel

Plenum boxes

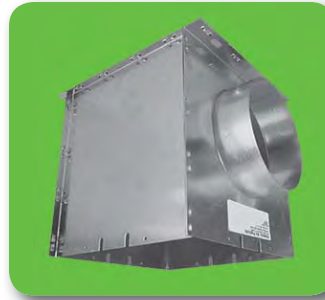
Pressure loss: multiply diffuser pressure loss by 1.25

Note: Actual spigot size = nominal - 3mm

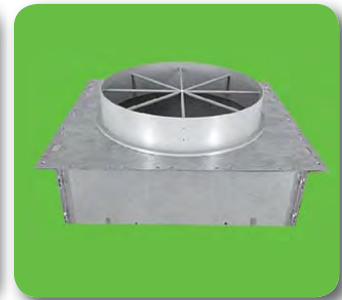
Neck reducers

Pressure loss and noise levels should be based on the spigot air velocity and the nominal diffuser size, ie. if a 450 sq neck diffuser handling 200 l/s is fitted with a neck reducer having a 315 Ø spigot, the inlet air velocity is approximately 2.5 m/s.

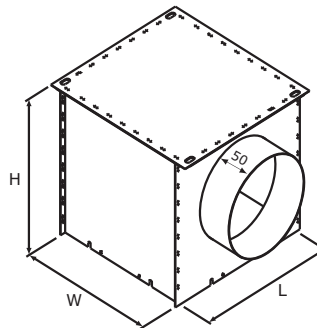
Throw: use catalogue data providing that the ratio of diffuser to neck size remains less than 1.5:1.



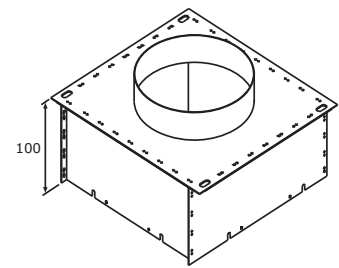
PBD



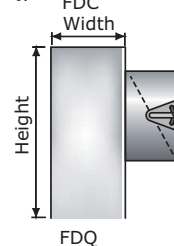
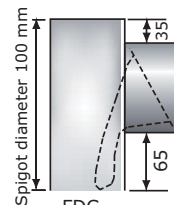
NRD



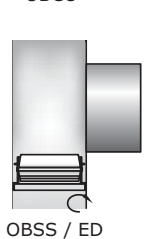
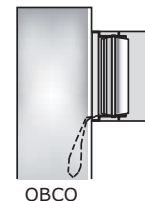
PBD - Side Entry plenum box



NRD - Neck Reducer



Control Options



ORDER EXAMPLE

Type	PBD/450/450/400/1CC/SE/297dia/FDC/LINED
Plenum Box Length	
Plenum Box Width	
Plenum Box Height	
Spigot Number / Shape	
Entry	
Spigot Size	
Option	
Option	

Plenum Box to suit D Diffusers

PBD / NRD Neck Reducer

Installation

The plenum boxes and neck reducers are supported by four drop rods through a locating hole positioned near each corner.

When ordering plenum boxes please specify length x width x height, spigot size and position (top or side entry), and control options. Please note that the plenum height should in general be 100mm greater than the spigot diameter (side entry applications).

Neck reducers are available as standard in sizes up to 1200 x 600. The high profile is designed to accommodate an opposed blade damper.

Note: Actual spigot diameter is nominal - 3mm (i.e. 200mm is 197mm actual).

Note: Plenum length is determined by linear diffuser selection.

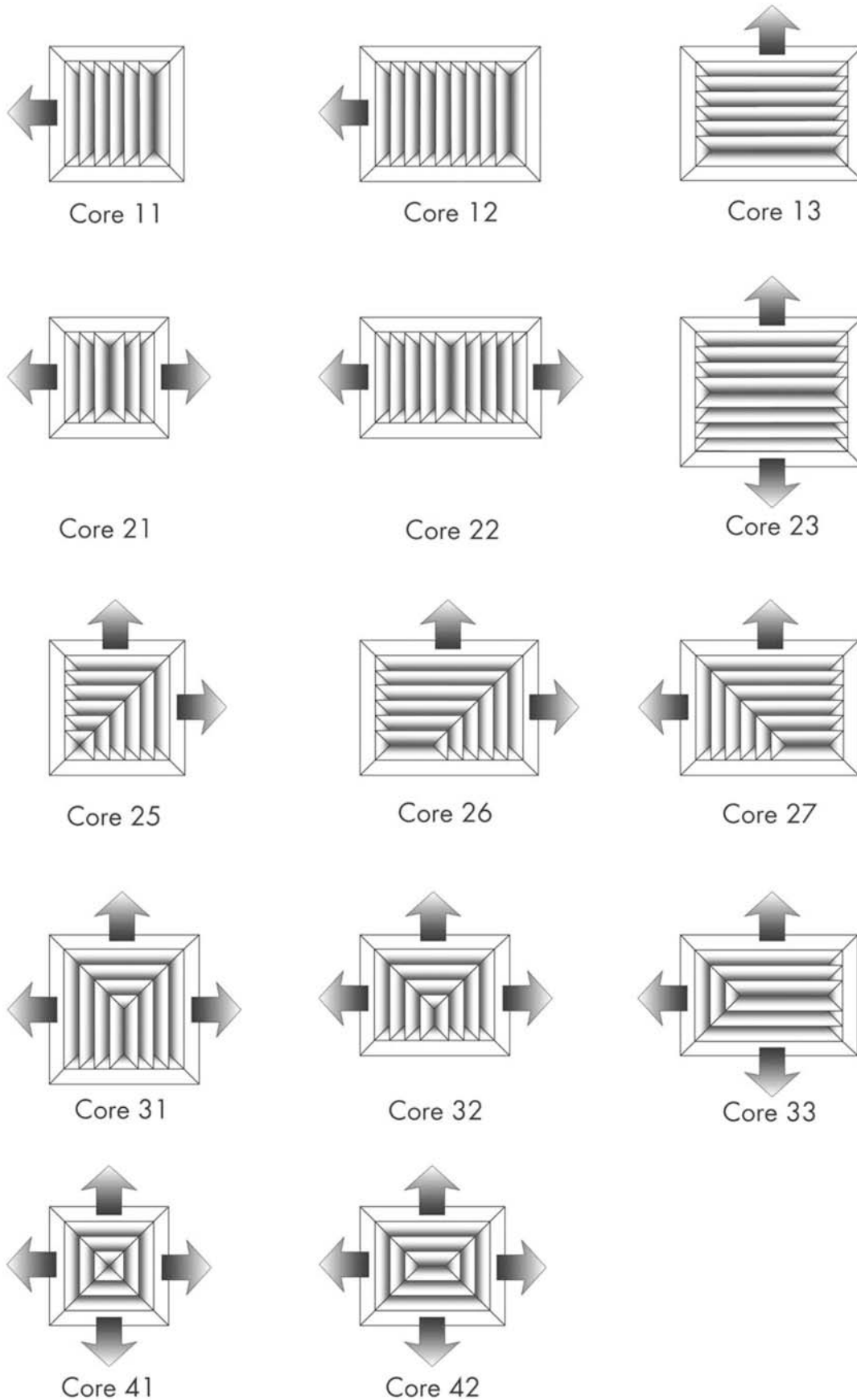
Note: The connection between the diffuser and plenum is adequately sealed for most installations, although secondary additional sealing may be required at the discretion of the installers, if the leakage rate required is particularly low.

Performance Table

Diffuser Neck size (mm)	Nominal Spigot size (mm)	Diffuser + Plenum + Open OBSS Maximum flow rate to achieve stated noise levels (l/s)					Actual Plenum Dimensions		
		30dB	35dB	40dB	45dB	50dB	L	W	H
150x150	150Ø	45	55	65	80	95	150	150	250
225x225	200Ø	75	100	125	150	175	225	225	300
225x150	200Ø	60	80	100	115	130	225	150	300
300x300	250Ø	140	170	210	260	310	300	300	350
300x225	250Ø	90	130	170	210	240	300	225	350
300x150	250Ø	85	110	135	160	185	300	150	350
375x375	350Ø	210	240	290	355	430	375	375	450
375x300	350Ø	160	210	260	330	400	375	300	450
375x225	350Ø	125	170	215	270	330	375	225	450
375x150	350Ø	120	140	170	210	260	375	150	450
450x450	400Ø	230	310	400	500	650	450	450	500
450x375	400Ø	220	280	355	450	590	450	375	500
450x300	400Ø	190	260	330	410	490	450	300	500
525x525	500Ø	290	410	540	670	840	525	525	600
525x450	500Ø	280	380	490	610	810	525	450	600
525x375	500Ø	275	360	460	580	690	525	375	600
525x300	500Ø	235	315	380	480	590	525	300	600
600x600	500Ø	530	620	700	850	1020	600	600	600
600x450	500Ø	380	450	540	660	850	600	450	600
600x300	500Ø	350	410	460	560	680	600	300	600

Louvred Face Diffusers

Core Conguration Summary



Control Options - Grille Mounted OBSS Opposed Blade Damper (Volume Control Damper)

Introduction

Waterloo OB Opposed Blade Dampers are manufactured to suit virtually the whole of our square / rectangular Air Terminal range and can be fitted to the neck of the terminals or inside plenum box.

They are adjustable from the front of the Grille or Diffuser with a screwdriver as standard, but are also available with cord- or lever-operation.

Manufactured with linked aluminium extruded blades, in sizes to suit any Waterloo Grille or Diffuser, they are useful for fine airflow regulation and can be adjusted from fully open to closed low-leakage position.

Product Description

- OBSS** Opposed Blade Damper, Screwdriver operated
OBCO Opposed Blade Damper, Cord operated
OBSL Opposed Blade Damper, Short Lever operated
OBLL Opposed Blade Damper, Long Lever operated
BLACK Painted black to prevent through vision

Features

- Linked aluminium extrusions for limited extra weight
- Large choice of adjustments to suit any configuration
- Can be fitted to virtually any Waterloo Grille or Diffuser

Finishes

Extruded aluminium blades

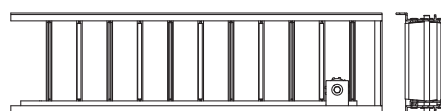
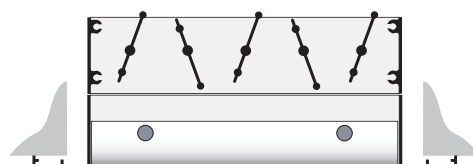
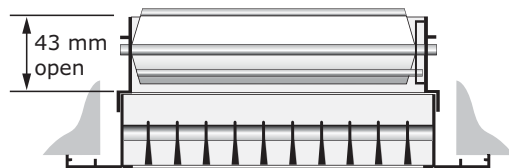
Sizes

Minimum Size - 100 x 75

Minimum Size for Plasterline - 100 x 50

Maximum Size - single section 800x600mm

Multiple sections will be banked to accommodate larger terminal sizes.



ORDER EXAMPLE

OBSS/Black/600/200/For ALN

Damper type
Options
Terminal Length
Terminal Width
Terminal type

ED Equalising Dampers (Directional Blades Incapable of Shut Off)

Introduction

Waterloo ED Equalising Dampers are manufactured to suit virtually the whole of our square / rectangular Air Terminal range and can be fitted to the neck of the terminals or inside plenum box.

They are individually adjustable to control air direction and may be used for localised blanking.

Manufactured with aluminium extruded blades, in sizes to suit any Waterloo Grille or Diffuser, they can be adjusted manually by removing the Grille or Diffuser core.

Product Description

- ED** Equalising deflector
BLACK Painted black to prevent through vision

Features

- Aluminium extrusions for limited extra weight
- Individually adjustable for fine airflow regulation
- Can be fitted to virtually any Waterloo Grille or Diffuser

Finishes

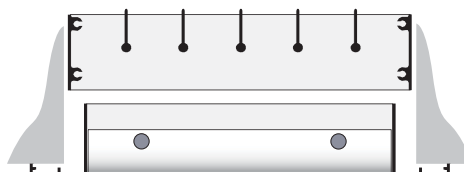
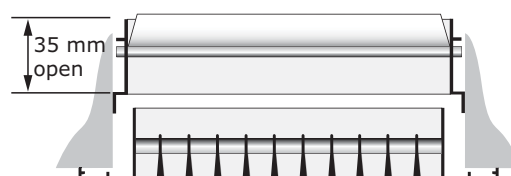
Extruded aluminium blades

Sizes

Minimum Size - 100 x 50

Maximum Size - single section 800x600mm

Multiple sections will be banked to accommodate larger terminal sizes.



ORDER EXAMPLE

ED/Black/600/200/For A CSF

Damper type
Options
Terminal Length
Terminal Width
Terminal type



Waterloo Product Range

GRILLES

A complete range of products suitable for all wall, ceiling and floor applications. Most grilles are made from aluminium and have a range of fixed or moveable blades designed to give performance whilst remaining aesthetically pleasing to the eye. Grilles are made to customer specified sizes and colours (PPM/G); standard colour PPM9010 (20% Gloss White). The range is complemented by the Aircell range of polymer Grilles.



DIFFUSERS

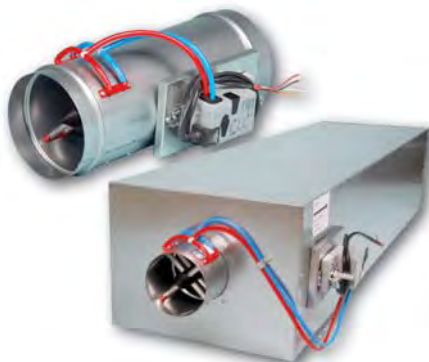
Designed to be installed in various ceiling systems, we have a complete range to suit both performance and aesthetical requirements. Most diffusers are made from aluminium and can be ordered with or without plenum boxes for easy duct work. Diffusers can be ordered in customer specified colours (PPM/G); standard colour is PPM 9010 (20% Gloss White). This range is complemented by the Aircell range of polymer Diffusers.



ACTIVE AND PASSIVE CHILLED BEAMS

The finest quality range of high output active beams, used for ventilated heating and cooling applications. These units have 4 pipe coils to allow heating and cooling circuits to run simultaneously, giving constant and responsive control. The design allows a large optimum capacity and also allows the customer to specify the nozzle type and pitch for individual circumstances.

Active beams are made from steel to a large range of customer specified sizes and as such are suitable for various different ceiling systems. Standard finish is PPM 9010, however other (PPM/G) colours are available on request.



AIR VOLUME CONTROL DAMPERS

Pressure independent Variable Air Volume and Constant Air Volume dampers made from zintec plate. Most volume dampers are regulated with an electronic motor and sensors and are calibrated to customer specifications before delivery.

The Constant Air Volume damper requires no power source as it is controlled via a mechanical device and calibrated before delivery. All volume dampers can be ordered with a single or double (insulation) skin.



EXTERNAL LOUVRES

A quality range of products for external wall applications. Made from aluminium, with birdscreen or insect screen options. All louvres are made to customer specified sizes and (PPM/G) colours; standard colour is PPM 9006.



DISPLACEMENT

A full range of recessed, semi-recessed, floor, wall and corner units providing high ventilation efficiency and excellent comfort. The very low pressure involved also offer quiet installations. Displacement units are available as wall or floor mounted, or indeed integrated within the architectural design.



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