



聯明坪山冷氣製品廠有限公司

LUEN MING PENGSHAN AIR CONDITIONING FACTORY LIMITED



LINEAR BAR DIFFUSER



FEATURES

- ▶ Constructed from extruded aluminum section.
- ▶ Maximum 3000 mm length in one modular section.
- ▶ 4 Type of core styles available which are:
Bar spacing: 10mm or 13mm
Bar Deflection: 0° or 30°
- ▶ 3 Type of bar spacings are 13mm, 19mm & 32mm available to be selected.

ASSESSORIES

- ▶ Opposite Blade Damper
- ▶ Blank Off Plate cover for inactive area
- ▶ Alignment strip for segment connection of diffuser.
- ▶ All Kind of corner fittings, curved fittings & section fittings.

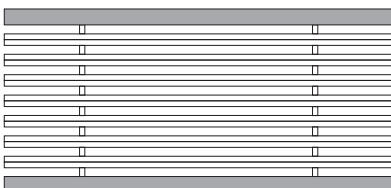
FINISH

- ▶ Finish in natural anodize or baked enamel in white as a standard, special anodize or baked enamel in various color are also available on request.

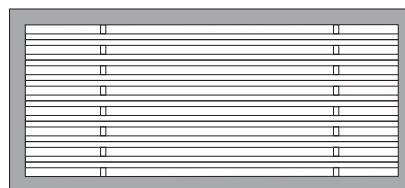
DESCRIPTION

- ▶ Linear bar diffusers are designed to air distribution requirement as well as architectural specification.
- ▶ The diffusers are suitable used for heating, cooling and ventilation, supply as well as return of air.
- ▶ Fixed bars parallel along with the long dimension, the linear bar diffusers are a suitable choice for using in modular or continuous situation for ceiling, side wall, sill or bulkhead application.

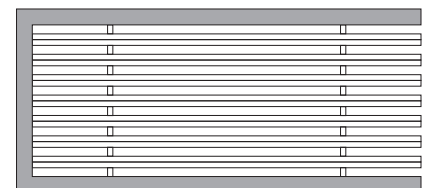
DIFFUSER TYPE



OPEN END



CLOSED FLANGE END



ONE OPEN END AND
ONE CLOSED FLANGE END

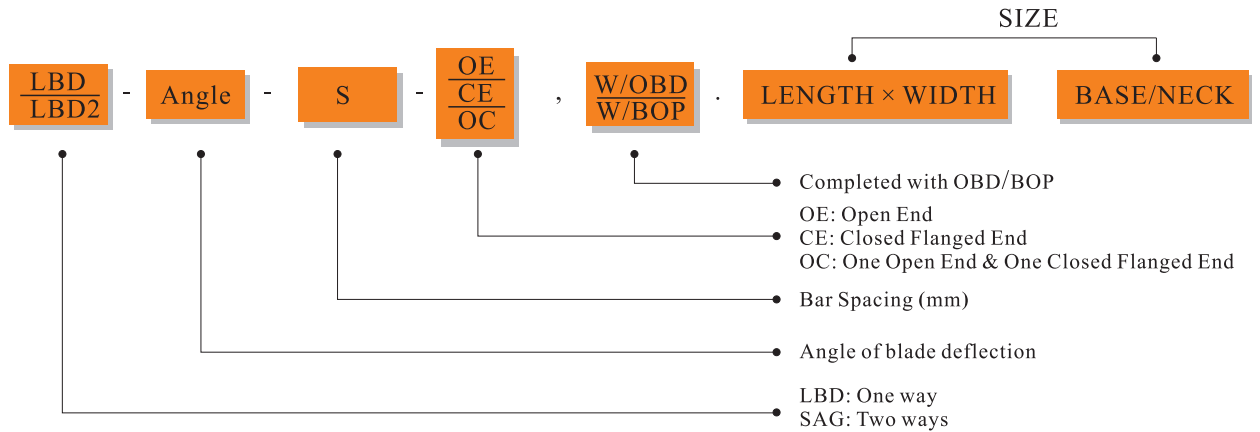


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ORDERING INFORMATION

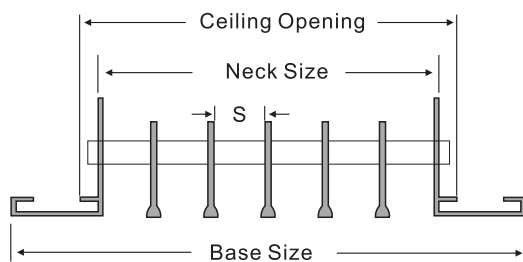


EXAMPLE: Model: **LBD - 30-13-CE, W/OBD, 600×600 (Neck)**

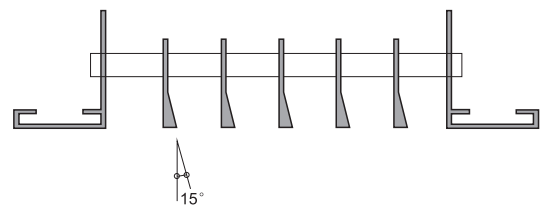
Aluminum Linear one way Bar Diffuser, 30° Deflection, 13mm Bar Spacing, Close End, completed with opposed blade damper 600 length × 600 width neck size.

TYPE & DIMENSIONS

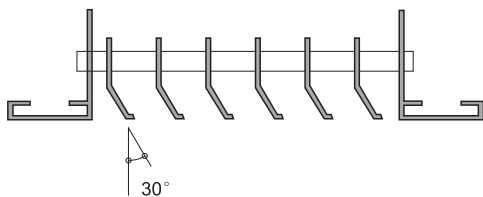
LBD-0



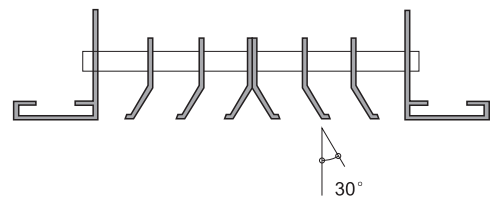
LBD-15



LBD-30



LBD2-30



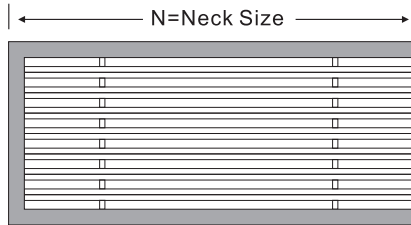


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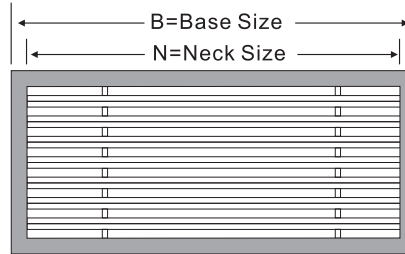


LBD 30° or 15° DEFLECTION



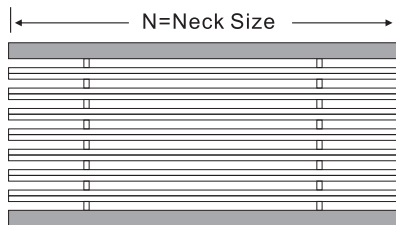
**ONE OPEN AND ONE CLOSED
FLANGED END**

LBD 0° DEFLECTION



CLOSED FLANGED END

LBD2 30° DEFLECTION



OPEN END

**CEILING / FLOOR OPENING
CO=N+1.5mm**

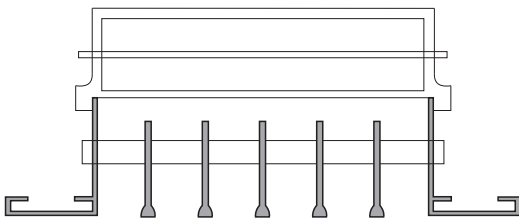
NECK SIZE N=D-12mm

BASE SIZE B=N+2×W

BORDER WIDTH W=13, 19 OR 32mm

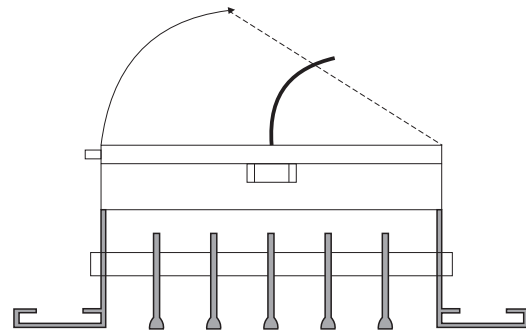
BAR SPACING S=10 OR 13mm

ACCESSORIES



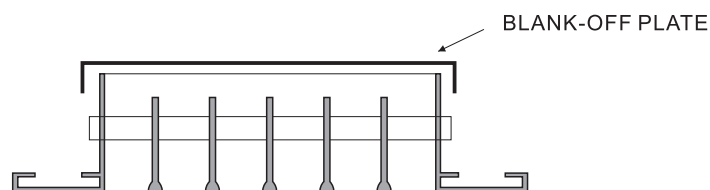
OPPOSED BLADES DAMPER (OBD)

Damper blades move simultaneously in opposed direction. Allows for smooth volume control from fully open to fully close. Damper manufactured from sheet steel. Standard finish is black baked enamel.



BLADE TYPE DAMPERS (BTD)

Damper is hinged at the rear of the grille frame. when opened, the blades swing back into the duct. The damper is screw driver operated from the face of diffuser. Dampers manufactured from sheet steel. Standard finish is black baked enamel.



BLANK-OFF PLATE (BOP)

Used for deactivating a single section or alternate sections of diffuser. Made of sheet steel painted matt black.



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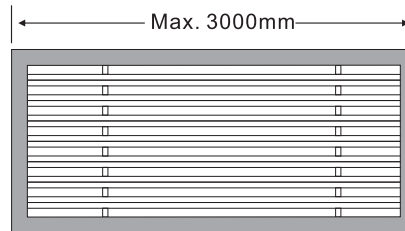
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SECTION FITTINGS

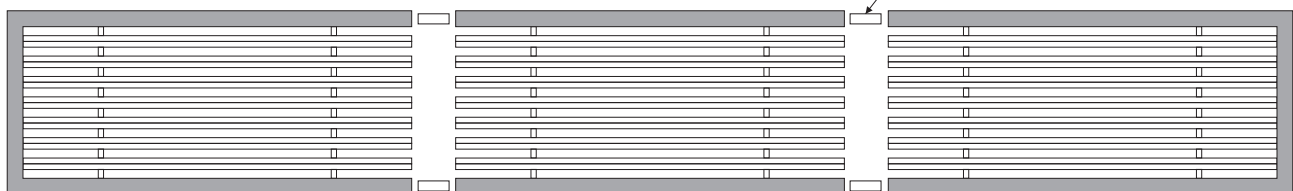
SINGLE SEGMENT

Maximum length of the diffuser is 3000 mm



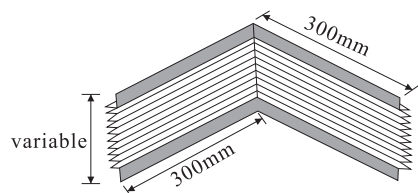
SINGLE SEGMENT

More than 3000mm, multi-division is required

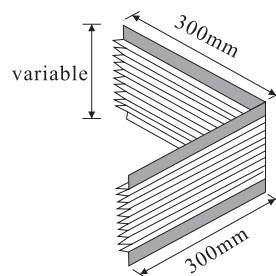


CORNER FITTINGS

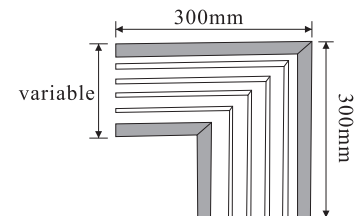
ANGLE



Sidewall- inside

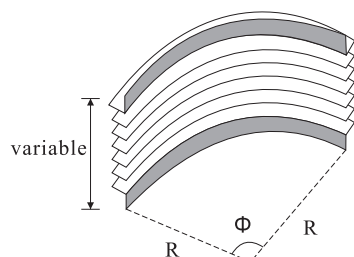


Sidewall- outside

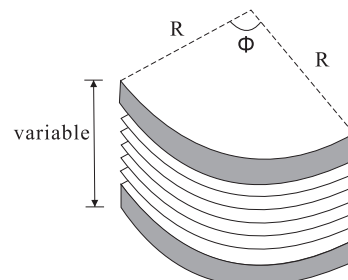


Ceiling or Sill

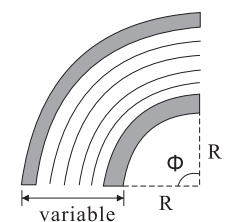
CURVE



Sidewall- inside



Sidewall- outside



Ceiling or Sill



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LUEN MING PENGSHAN AIR CONDITIONING FACTORY LIMITED



PERFORMANCE DATA

LBD-30° (30° Deflection Linear Diffuser)

SIZE (mm)	TOTAL PRESS.Pa	3	7	12	18	27	37	48	60
63 Ak.021	FLOW m ³ /s/PER m	0.042	0.063	0.084	0.105	0.126	0.147	0.168	0.189
	NC	-	11	17	22	29	35	40	45
	THROW(m)	SILL OR FLOOR	-	1-1-1	2-2-2	3-3-4	3.5-4-4.5	3.5-4-4.5	4-4-5-5
		SIDE WALL	1-1.5-2.5	1.5-2.5-3.5	2.5-3.5-5	3-4-5-6	3.5-5-7	4-5-5-7.5	4.5-6.5-8.5
75 Ak.031	FLOW m ³ /s/PER m	0.062	0.093	0.124	0.155	0.186	0.217	0.248	0.279
	NC	-	12	18	24	31	35	41	47
	THROW(m)	SILL OR FLOOR	5-5-5	2-2-2	3-3-3	3.5-3.5-4.5	4-4-5-5	4-5-5-5.5	5-5-5-6
		SIDE WALL	1.5-2-3	2-3-4	2-4-5.5	3.5-5-6.5	4-5-5-7.5	4.5-6.5-8.5	5-7-5-9.5
100 Ar.046	FLOW m ³ /s/PER m	0.092	0.0138	0.184	0.230	0.276	0.322	0.368	0.414
	NC	-	12	19	25	31	37	42	48
	THROW(m)	SILL OR FLOOR	5-5-5	2-2-2	3-3-3	3.5-3.5-5.5	4-5-4-5.5	5-5-6-6.5	6-6-5-7
		SIDE WALL	1.5-2-3	2-3-4	3-4-5.5	4-5-5-7	5-6-5-8.5	5-5-7-9	6-5-8-10
125 Ak.058	FLOW m ³ /s/PER m	0.116	0.174	0.232	0.290	0.348	0.406	0.464	0.522
	NC	-	14	23	29	35	40	45	49
	THROW(m)	SILL OR FLOOR	1-1-1	2.5-2.5-2.5	3.5-3.5-3.5	4-5-4-5-5	5-5-5-5-6	5-5-6-6	6-6-6-5
		SIDE WALL	1-1.5-2.5	1.5-2.5-3.5	2.5-3.5-5	4-4-4-5	5-5-5-5	5-6-5-8.5	6-5-8-9
150 Ak.072	FLOW m ³ /s/PER m	0.144	0.216	0.288	0.360	0.432	0.504	0.576	0.648
	NC	12	18	24	31	36	42	46	50
	THROW(m)	SILL OR FLOOR	1.5-1.5-1.5	3-3-3	4-4-4	4-5-4-5-4.5	6-6-6	7-7-7-5	8-8-8
		SIDE WALL	2-2.5-3.5	3-4-5	4-5-6.5	5-6-5-8	6-5-7-5-9	7-5-8-5-10	8-9-1-11
200 AK.110	FLOW m ³ /s/PER m	0.200	0.300	0.400	0.500	0.600	0.700	0.800	0.900
	NC	13	22	28	34	39	44	45	50
	THROW(m)	SILL OR FLOOR	2-2-2	3.5-3.5-3.5	4.5-4-5-4.5	5.5-5-5-5-5	7-7-7.5	7.5-7-5-8	9-9-9
		SIDE WALL	3-3-4	4-5-6	5-6-8	6-7-5-8.5	7-8-5-9.5	9-9-11	9-11-12
250 AK.130	FLOW m ³ /s/PER m	0.260	0.390	0.520	0.650	0.780	0.910	1.04	1.17
	NC	15	23	30	35	40	45	50	50
	THROW(m)	SILL OR FLOOR	2.5-2.5-2.5	4-4-4	5-5-5	6-6-6	7-5-8-8	8-8-9	10-10-10
		SIDEWALL	4-4-5	5-6-7	6-7-9	7-8-9	8-9-10	10-11-13	10-11-12

LBD-0° (0° Deflection Linear Diffuser)

SIZE (mm)	TOTAL PRESS.Pa	2.5	6	10	16	23	31	40	50
63 Ak.024	FLOW m ³ /s/PER m	0.048	0.072	0.096	0.120	0.144	0.163	0.192	0.216
	NC	-	-	16	20	27	32	38	40
	THROW(m)	SILL OR FLOOR	-	1-1-1	2-2-2	3-3-4	3.5-4-4.5	3-4-5-4	4-5-5-5
		SIDE WALL	1-1.5-2.5	1.5-2.5-3.5	2.5-3.5-5	3-4-5-6	3.5-5-7	4-5-6-8	5-7-9
75 Ak.036	FLOW m ³ /s/PER m	0.072	0.108	0.144	0.180	0.216	0.252	0.288	0.324
	NC	-	-	17	22	30	33	40	42
	THROW(m)	SILL OR FLOOR	5-5-5	2-2-2	3-3-3	3.5-3.5-4.5	4-4-5-5	5-5-5-6	5-5-6-6.5
		SIDE WALL	1.5-2-3	2-3-4	2-4-5.5	3.5-5-6.5	4-5-5-7.5	5-7-9	5-8-8-10
100 Ak.052	FLOW m ³ /s/PER m	0.104	0.156	0.208	0.260	0.312	0.364	0.416	0.468
	NC	-	-	18	24	30	35	40	42
	THROW(m)	SILL OR FLOOR	5-5-5	2.5-2.5-2.5	3.5-3.5-3.5	4-4-5	5-5-5.5	6-6-5-7	6-5-7-7.5
		SIDEWALL	1.5-2-3	2.5-3.5-4.4	3.5-4-5-6	4-5-6-7.5	5-5-7-9	6-8-10	7-9-11
125 Ak.067	FLOW m ³ /s/PER m	0.134	0.201	0.268	0.335	0.402	0.469	0.536	0.603
	NC	-	-	22	28	34	39	42	45
	THROW(m)	SILL OR FLOOR	1-1-1	3-3-3	4-4-4	5-5-5	6-6-6.5	7-7-7	7-5-7-5-8
		SIDE WALL	2-2.5-3.5	3-4-5	4-5-6.5	5-6-5-8	6-8-9.5	7-8-5-11	8-10-12
150 AK:083	FLOW m ³ /s/PER m	0.166	0.249	0.332	0.415	0.498	0.581	0.664	0.747
	NC	-	11	23	30	34	41	44	45
	THROW(m)	SILL OR FLOOR	1.5-1.5-1.5	3-3-3	4-4-4	5-5-5	6-5-6-5-6.5	7-7-7.5	8-8-8
		SIDE WALL	2.5-3-4	3.5-4-5-5.5	4.5-5-5-7	5-5-7-8.5	7-8-9	8-9-11	8.5-10-12
200 AK:115	FLOW m ³ /s/PER m	0.230	0.345	0.460	0.575	0.690	0.805	0.920	1.035
	NC	-	12	27	32	38	42	44	45
	THROW(m)	SILL OR FLOOR	2-2-2	3.5-3.5-3.5	4.5-4-5-4.5	5.5-5-5-5-5	7-7-7.5	7-5-7-5-8	9-9-9
		SIDE WALL	3-3-5-4.5	4-5-6	5-6-8	6-7-5-9	7-5-9-9.5	9-10-12	9-11-12
250 AK:148	FLOW m ³ /s/PER m	0.296	0.444	0.592	0.74	0.888	1.036	1.184	1.332
	NC	-	14	28	33	29	43	45	46
	THROW(m)	SILL OR FLOOR	2.5-2.5-2.5	4-4-4	5-5-5	6-6-6	7-5-8-8	8-8-9	10-10-10
		SIDEWALL	4-4-5-4.5	5-6-7	6-7-9	7-8-9.5	8-9-5-10	10-11-13	10-12-13



LBD-30° (30° Deflection Linear Diffuser)

SIZE (mm)	TOTAL PRESS. Pa	3	7	12	18	27	37	48	60
100 Ak.043	FLOW m³/s PER m	0.086	0.129	0.172	0.215	0.258	0.301	0.344	0.387
	NC	-	-	18	24	30	35	40	42
	THROW(m) CEILING	5-1-1.5	1.5-2-3 17	2-2.5-4	2.5-3.5-5.5	3-4.5-7 1	3.5-5.5-8.5	4-6-9.5 1	5-7.5-11
125 Ak.055	FLOW m³/s PER m	0.11	0.165	0.22	0.275	0.33	0.385	0.44	0.495
	NC	-	-	22	28	34	39	42	45
	THROW(m) CEILING	5-1-1.5	1.5-2-3	2.5-2.5-4.5	2.5-4-6 7	3-5-7.5 1	3.5-6-9	4.5-6.5-10	5-8-12
150 Ak.069	FLOW m³/s PER m	0.138	0.207	0.276	0.345	0.414	0.483	0.552	0.621
	NC	-	11	23	30	34	41	44	45
	THROW(m) CEILING	5-1-1.5	1.5-2-3	1.5-2-3	3-4-7	3.5-5.5-8.5	4-6.5-9.5	5-7-11	5.5-8.5-13
200 Ak.097	FLOW m³/s PER m	0.194	0.291	0.388	0.485	0.582	0.679	0.776	0.873
	NC	-	12	27	32	38	42	44	45
	THROW(m) CEILING	1-1-2	2-2.5-4 17	2.5-3.5-5.5	3-5-8 7	4-6-9.5	4.5-7-11	5.5-8-12.5	6-9-14
250 Ak.127	FLOW m³/s PER m	0.254	0.381	0.508	0.635	0.762	0.889	1.016	1.143
	NC	11	14	28	33	39	43	45	46
	THROW(m) CEILING	1-1.5-2	2-2.5-4.2 11	2.5-4-6 7	3.5-5-8.5	4.5-6.5-10	5-7.5-12	6-9-13	6.5-10-15
300 Ak.140	FLOW m³/s PER m	0.28	0.42	0.56	0.7	0.84	0.98	1.120	1.260
	NC	12	15	29	33	40	45	48	50
	THROW(m) CEILING	1-1.5-2	2-2.5-4.5	2.5-4-6.5	3.5-8.5	4.5-6.5-10.5	6-8.5-13.5	6-9-14	7-10.5-16

NOTES ON PERFORMANCE DATA

Throw

- ▶ Maximum throw are to terminal velocity of 0.25 m/s.
- ▶ Middle throw are to terminal velocity of 0.5 m/s.
- ▶ Minimum throw value are based on a 1m active section of grille with a cooling temperature differential of 11°C. The multiplier factors listed in the table below are applicable for other lengths.

Throw Correction for Length (Multiply)

ACTIVE LENGTH	TERMINAL VELOCITY		
	0.75m/s	0.5m/s	0.25m/s
0.3m	0.5	0.6	0.7
3m or CONTINUOUS	1.6	1.4	1.2

$m^3/s = Ak \text{ (as show on Performance Data)} \times \text{Average Velocity (m/s) Active Length (m)}$

Sound

- ▶ The NC values are based on a room absorption of 10db re 10⁻¹² watts and a 3m active section.

Return Air Application

- ▶ When used as a return air intake, the NC value given in the performance table will be increased by 5.
- ▶ For a return air application, the negative static pressure will be 0.8 times the total pressure value as shown in the performance table .

Recommended Air Balancing Procedure

1. Use an ALNOR velometer with tip No. 2220A.
2. Average the measuring data.
3. Determine air flow rate by the following equation.