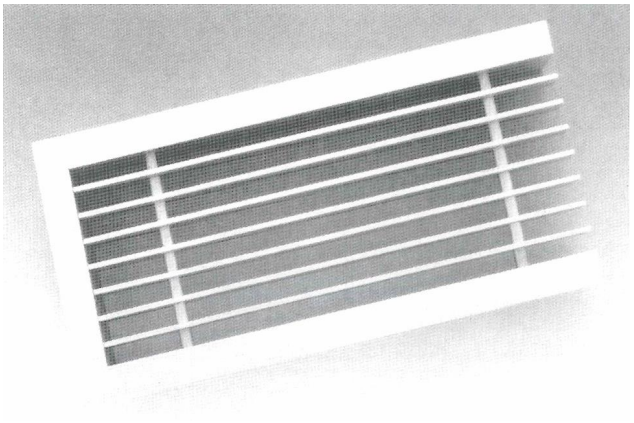
Model LBD/LBD2 Linear Bar Grilles
One Way and Two Way



Model LBD/ LBD2 linear bar diffusers are specially designed to match with the modern interior design with outstanding performance. With fixed bars parallel to the long dimension, linear bar diffusers are a popular choice for continuous line use on a variety of application.
Linear bar diffusers are designed for installation in side wall, ceiling, sill or floor and can be used for supply or return air in heating, cooling or ventilation application.
A variety of line styles and border widths are available to allow a selection to suit almost any application.

Features

- Extruded aluminium construction
- Maximum 3m length in one section
- Sections butt together to provide architecturally clean lines
- Choice of 4 core styles (LBD)
  Bar Deflection: 0 ° or 30 °
  Bar spacing: 13mm or 10mm
- Choice of 3 border widths 13mm, 19mm or 32mm
- Hinged/ Removable cores are available as option

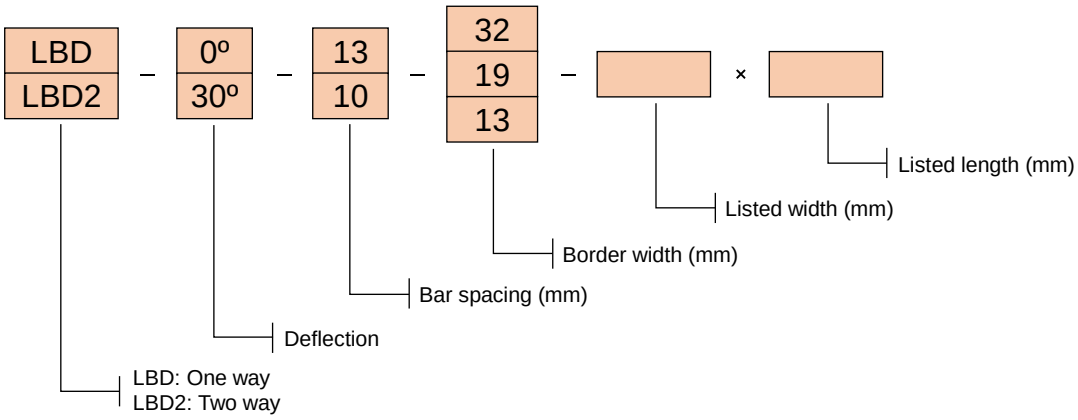
Finish

- Standard finish is natural anodize. Baked enamel, powder coating or special anodize finishes are available

Accessories

- Opposite blade damper (OBD)
- Blade type damper (BTD)
- Blank-off strips
- Mitered corners
  Side wall, inside
  Side wall, outside
  Floor, ceiling or sill

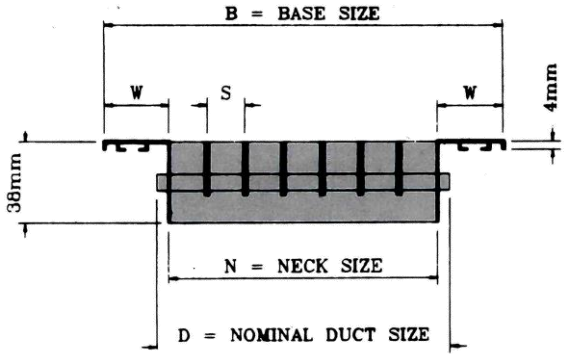
Order Code



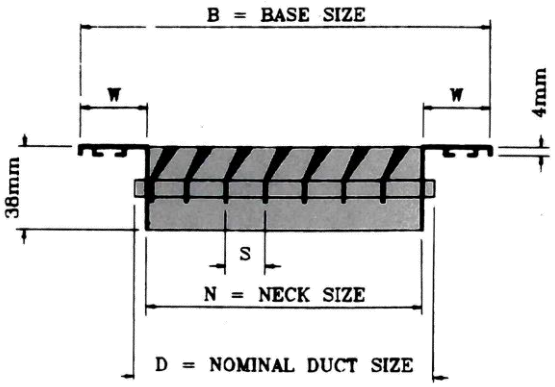
Note: For special finishes, optional construction and accessories, please specify when ordering.

Dimension And Accessories

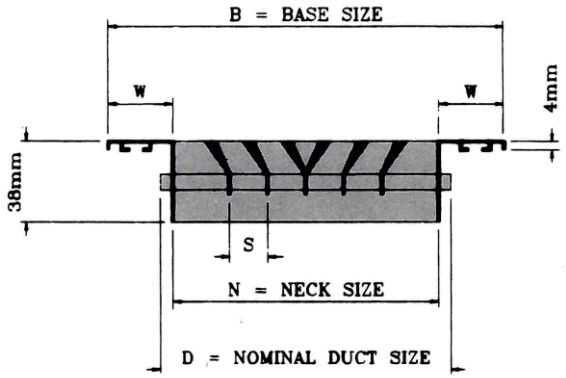
LBD 0° Deflection



LBD 30° Deflection

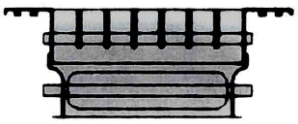
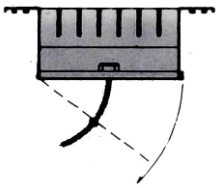
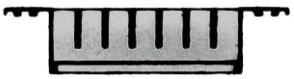


LBD2 30° Deflection



Neck Size N = D – 12mm
Base Size B = N + 2 x W
Border Width W = 13, 19 or 32mm
Bar Spacing S = 10 or 13mm

Accessories

	**Opposite blade dampers (OBD)** Damper blades move simultaneously in opposite directions. Allows for smooth volume control from fully open to fully close. Dampers manufactured from sheet steel. Standard finish is black baked enamel.
	**Blade type damper (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 strip** Used for deactivating a single section or alternate sections of diffuser. Made of sheet steel painted matt black.

Performance Data

LBD-30º-13 (30ºDeflection, 13mm Bar Spacing)

Size mm	Total Press. Pa		3	7	12	18	27	37	48	60
63 Ak .021	Flow m^3/s per m		.042	.063	.084	.105	.126	.147	.168	.189
	Throw m	Sill or Floor	-	1-1-1	2-2-2	3-3-4	3.5-4-4.5	4.5-4-4.5	4-4.5-5	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	4-5.5-7.5	4.5-6.5-8.5	5.8-7.5-9.5
75 Ak .031	Flow m^3/s per m		.062	.093	.124	.155	.186	217	248	279
	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	6-6.5-7
		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	6-8.5-10.5
100 Ak .046	Flow m^3/s per m		0.92	.138	.184	.230	.276	.322	.368	.414
	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	7.5-7.5-8
		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	8-9-11
125 Ak .058	Flow m^3/s per m		.116	.174	.232	.290	.348	.406	.464	.522
	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	7-7-8
		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	8-9-10
150 Ak .072	Flow m^3/s per m		.144	.216	.288	.360	.432	.504	.576	.648
	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	9-9-9
		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	8-9.5-11	9-11-13
200 Ak .110	Flow m^3/s per m		.200	.300	.400	.500	.600	.700	.800	.900
	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	10-10-10
		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	10-12-14
250 Ak .130	Flow m^3/s per m		.260	.390	.520	.650	.780	.910	1.04	1.17
	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	11-11-11
		Side wall	4-4-5	5-6-7	6-7-9	7-8-9	8-9-10	10-11-13	10-11-12	11-14-15
Sound Level			≤NC20	NC25	NC30	NC35	NC40	NC45	NC50	

LBD2-30º-13 (Two Way, 30ºDeflection, 13mm Bar Spacing)

Size mm	Total Press Pa		3	7	12	18	27	37	48	60
100 Ak .043	Flow m^3/s per m		.086	.129	.172	.215	.258	.301	.344	.387
	Throw	Ceiling	.5-1-1.5	1.5-2-3	2-2.5-4	2.5-3.5-5.5	3-4.5-7	3.5-5.5-8.5	4-6-9.5	5-7.5-11
125 Ak .055	Flow m^3/s per m		.110	.165	.220	.275	.330	.385	.440	.495
	Throw	Ceiling	.5-1-1.5	1.5-2-3	2.5-2.5-4.5	2.5-4-6	3-5-7.5	3.5-6-9	4.5-6.5-10	5-8-12
150 Ak .069	Flow m^3/s per m		.138	.207	.276	.375	.414	.483	.552	.621
	Throw	Ceiling	.5-1-1.5	1.5-2-3	2.5-3-5	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 m^3/s per m		.194	.291	.388	.485	.582	.679	.776	.873
	Throw	Ceiling	1-1-2	2-2.5-4	2.5-3.5-5.5	3-5-8	4-6-9.5	4.5-7-11	5.5-8-12.5	6-9-14
250 Ak .127	Flow m^3/s per m		.254	.381	.508	.635	.762	.889	1.016	1.143
	Throw	Ceiling	1-1.5-2	2-2.5-4.5	2.5-4-6	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 m^3/s per m		.280	.420	.560	.700	.840	.980	1.12	1.26
	Throw	Ceiling	1-1.5-2	2-2.5-4.5	2.5-4-6.5	3.5-5-8.5	4.5-6.5-10.5	6-8.5-13.5	6-9-14	7-10.5-16
Sound Level			≤NC20	NC25	NC30	NC35	NC40	NC45	NC50	

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 equator
   m^3/s = **A_k** (as shown on Performance Table) x Average Velocity (m/s) x Active Length (m)

LBD-0º-13 (0ºDeflection, 13mm Bar Spacing)

Size mm	Total Press Pa		2.5	6	10	16	23	31	40	50
63 Ak .024	Flow m^3/s per m		.048	.072	.096	.120	.144	.163	.192	.216
	Throw m	Sill or Floor	-	1-1-1	2-2-2	3-3-4	3.5-4-4.5	3-4.5-5	4-5-5.5	4.5-5.6
		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	6-8-10
75 Ak .036	Flow m^3/s per m		.072	.108	.144	.180	.216	.252	.288	.324
	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	6.5-7-7.5
		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	6.5-9-11
100 Ak .052	Flow m^3/s per m		.104	.156	.208	.260	.312	.364	.416	.468
	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	8-8-8
		Side wall	1.5-2-3	2.5-3.5-4.5	3.5-4.5-6	4.5-6-7.5	5.5-7-9	6-8-10	7-9-11	8-10-12
125 Ak .067	Flow m^3/s per m		.134	.201	.268	.335	.402	.469	.536	.603
	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	8.5-8.5-9
		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	9-11-13
150 Ak .083	Flow m^3/s per m		.166	.249	.332	.415	.498	.581	.664	.747
	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	9-9-9
		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	9.5-12-14
200 Ak .115	Flow m^3/s per m		.230	.345	.460	.575	.690	.805	.920	1.035
	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	10-10-10
		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	10-13-15
250 Ak .148	Flow m^3/s per m		.296	.444	.592	.74	.888	1.036	1.184	1.332
	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	11-11-11
		Side wall	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	11-14-16
Sound Level			≤NC20		NC25	NC30	NC35	NC40	NC45	

Notes On Performance Data

Throw

Maximum throws are to a terminal velocity of 0.25 m/s.
Middle throws are to a terminal velocity of 0.5 m/s.
Minimum throws are to a terminal velocity of 0.75 m/s.
These throw values are based on a 1m active section of grille with a cooling temperature differential of 11º C. The multiplier factors listed in the table below are applicable for other lengths.

Throw Correction For Length (Multiply)

	Terminal Velocity		
Active Length	.75 m/s	.5 m/s	.25 m/s
0.3m	0.5	0.6	0.7
3m or Continuous	1.6	1.4	1.2

Sound

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

Return Air Applications

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.