CEILING DIFFUSER L-CL SERIES

FEATURES

- With aluminum frame and curved blades the L- CL is excellent for variable air volume applications.

- The quiet and strong designed curved blades are individually adjustable.

- The blades regulate the air flow as well as the angle of discharge.

- Optional opposed blade damper with screw driver adjustment on the neck of the diffuser.

- Optional multi-shutter mounted on the neck of the L-CL.

HOW TO SPECIFY

All curved blade grille shall be Laminaire L-CL constructed on tempered extruded aluminum with mechanically joint corners (FIGURE 1). To increase the grill strength and reduce vibrations we designed curved blades (FIGURE 2) which shall be pivoted design allowing reversibility . The grilles are powder coating finished assuring full coverage .
All diffusers should have an extruded channel to provide a double-acting air seal.
Blades shall be secured with the use of a self lubricated nylon bushing to keep perfect tension and to prevent blades.

Figure 1

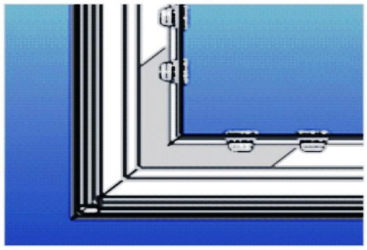


Figure 2

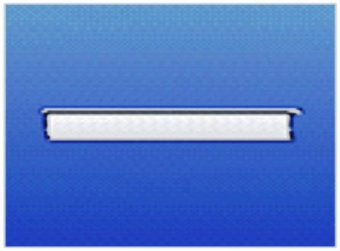
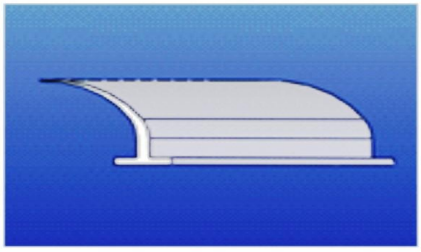


Figure 3

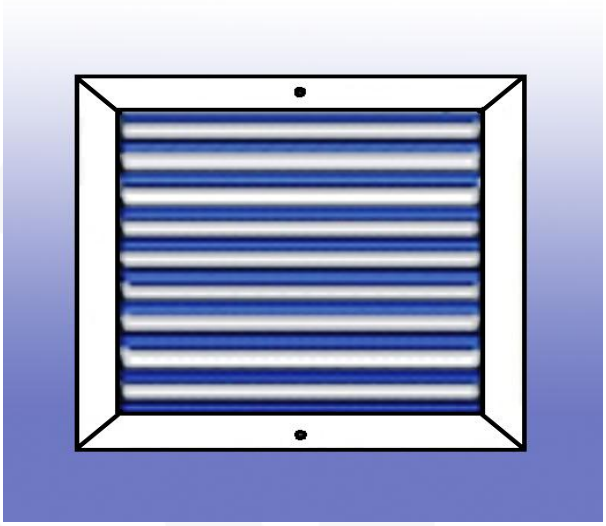


L-CL SERIES FEATURES

HOW TO SELECT

Note. All performance data contained here for L-CL SERIES Only.

Step 1. The grille selected should deliver the necessary CFM for the area to be conditioned.
Step 2. The throw (INFEET) should extend at least 75% of the distance form the face of the grille to wall opposite the outlet. The throw contained in the performance data is based on a terminal velocity of 50 feet per minute.
Step 3. The velocity at the neck should be based upon the recommended N.C. value in the chart at next page.



L-CL SERIES PERFORMANCE DATA

Applications	Comments	N.C. Range
Broadcast studios Music rooms	Extremely Quiet suitable for Low sound levels	Bellow 25
Residences Theaters Libraries Executive Offices	Very Quiet	30
Private Offices Hotel Rooms Courtrooms Churches Hospital Rooms Schools	Quiet Offices Voice Level will be heared up to 30 feet	35
Dining Room Labs General Offices Lounges	Moderately Quiet Voice Level will be heared up to 12 feet	40
Retrail Stores Lobbies Reception Areas Engeen-Office	Allows isolation of conversation. Voice Level will be heard up to 6 feet	45
Machinary room Comp-Rooms Factories	High Background sound Voice Level will be heard up to 30 feet	50

L-CL- SERIES PERFORMANCE DATA

Pressure: Total pressure readings are in inches water gauge at the horizontal air pattern. As blades are adjusted for more or less horizontal pattern then the respective Pt will increase or decrease. Full vertical throw requires a correction factor of 30 x Pt.

Throw: Throws indicated are based on total mumber of feet of. Projected air when a terminal velocity of 50 feet per minute is reached. Throws are based on a 9' ceiling height. For each additional foot in ceiling, height, reduce the throw rating by approximately one foot.

Neck velocuity: The neck velocity is based on feet perminute (FPM) at horizontal throw pattern.

Sound Data: The N.C. values are based upon absorption of 8Db.

Re 10^{-12} watts. The Simbol "- " INDICATES LESS THAN 20Db N.C. rating Dampering for “Fine Balancing” up to 25% of the CFM volume will reslt in an increase in N.C. of 6Db. Greater dampering will result in increasing noise levels, and Laminaire recommends remote - located balancing dampers upstream from the branch duct. If unit is used for return air, subtract 6Db. From N.C. value.

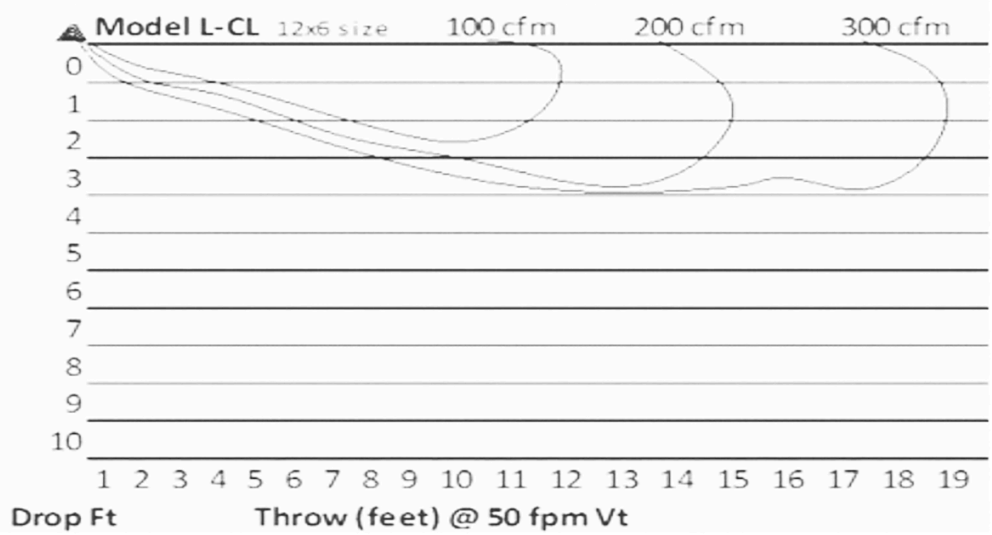
Correction factor: Data shown is for unit with OBD. If OBD is omitted make the following corrections:

Non- Dampered correction factor

Throw	Total Presure	N.C.
x 97	x 84	minus 4 Db

Recommended Horizontal Air Pattern Blade Position

Performance Chart



L-CLM/L-CLOB - FEATURES

		8x4 Ac=,16ft²	8 x 6 8 x 5 10 x Ac=,20ft²	8 x 6 10 x 5 12 x4 Ac=,26ft²	9 x 6 10 x 6 12 x 5 Ac=,35ft²	8 x 8 12 x 6 14 x 6 Ac=,40ft²	9x9 10 x 8 14 x 6 Ac=,45ft²	12x8 16 x 6 24x4 Ac=,55ft²	10x10 18x6 Ac=,62ft²	12 x 10 14 x 8 20 x 6 30x4 Ac=,70ft²
CFM		deflection 1 2 3 4	deflection 1 2 3 4	deflection 1 2 3 4	deflection 1 2 3 4	deflection 1 2 3 4	deflection 1 2 3 4	deflection 1 2 3 4	deflection 1 2 3 4	deflection 1 2 3 4
50	neck velocity/N.C. throw in feet total pressure	300 11 9 8 7 .027/-	250 10 8 6 5 .018/-	170 9 7 6 5 .012/-						
75	neck velocity/N.C. throw in feet total pressure	265 15 13 11 9 22/30	235 13 11 9 8 ,045/ -	250 11 8 6 5 ,038/-	200 10 8 6 5 .017/-	190 10 7 5 4 ,013/-				
100	neck velocity/N.C. throw in feet total pressure	820 18151211 22/30	4000 16141110 ,83/22	350 16 13 10 9 ,046/-	300 13 11 9 7 ,029/-	250 12 7 6 5 ,022/-	200 13 10 8 7 ,026/-	190 10 8 6 5 ,012/-		
125	neck velocity/N.C. throw in feet total pressure		500 19151311 ,099/27	450 16141110 ,070/23	350 1612109 ,047/-	325 13 10 9 8 ,033/-	285 13 10 8 7 ,026/-	220 13 10 9 8 ,019/-	200 11 9 8 8 ,016/-	
150	neck velocity/N.C. throw in feet total pressure		600 26211816 ,188/31	600 21181312 ,153/28	425 1714119 ,069/-	400 14131110 ,047/-	350 14131110 ,036/-	280 141298 ,026/-	250 131398 ,022/-	210 131098 ,018/-
175	neck velocity/N.C. throw in feet total pressure				500 19161311 ,092/24	450 15141310 ,064/21	400 14131211 ,052/-	320 141298 ,037/-	290 14131210 ,029/-	250 1312119 ,022/-
200	neck velocity/N.C. throw in feet total pressure				600 24191514 120/29	500 16151311 082/25	450 15141312 0,068122	375 15141211 .0471-	350 14131211 .037/20	290 13121110
225	neck velocity/N.C. throw in feet total pressure				675 28231614 152/33	550 17161413 .102/17	500 16151413 0,08326	400 16151413 .059/20	375 15141312 0.47/21	320 15141210 ,0381-
250	neck velocity/N.C. throw in feet total pressure					600 18161514 130/30	575 17161514 101/30	475 16151413 .073/25	400 16151413 .058/21	350 15141312 ,047/20
275	neck velocity/N.C. throw in feet total pressure					700 18171615 ,161/34	600 17161514 ,102/30	500 17161514 ,086/26	450 16151413 ,066/22	400 16151413 ,059/21
300	neck velocity/N.C. throw in feet total pressure							550 27231917 ,101/28	500 26211715 ,086/25	420 24201615 ,069/23
375	neck velocity/N.C. throw in feet total pressure							650 30252220 ,115/33	600 28232018 ,096/32	520 26221917 ,082/29

Data: Only available as 4 way pattern

"-" indicates less than 20 Db NC rating

L-CLM/L-CLOB - FEATURES

		8x4 Ac=,16ft²	8 x 6 8 x 5 10 x Ac=,20ft²	8 x 6 10 x 5 12 x4 Ac=,26ft²	9 x 6 10 x 6 12 x 5 Ac=,35ft²	8 x 8 12 x 6 14 x 6 Ac=,40ft²	9x9 10 x 8 14 x 6 Ac=,45ft²	12x8 16 x 6 24x4 Ac=,55ft²	10x10 18x6 Ac=,62ft²	12 x 10 14 x 8 20 x 6 30x4 Ac=,70ft²
CFM		deflection 1 2 3 4	deflection 1 2 3 4	deflection 1 2 3 4	deflection 1 2 3 4	deflection 1 2 3 4	deflection 1 2 3 4	deflection 1 2 3 4	deflection 1 2 3 4	deflection 1 2 3 4
400	neck velocity/N.C. throw in feet total pressure							750 31262322 ,142/37	650 29242120 0,186/35	585 28232019 0,90/30
425	neck velocity/N.C. throw in feet total pressure								700 31252821 ,118/36	610 30242120 ,106/32
450	neck velocity/N.C. throw in feet total pressure									650 32262220 ,118/33

		14 X 10 16 X 8 15 X 9 24x36 Ac=,81ft²	12 x 12 18 x 8 Ac=,87ft²	14 x 12 16 x 10 20 x 8 30 x 6 Ac=1,02ft²	16 x 12 18 x 10 24 x 8 Ac=1,15ft²	14 x 14 20 x 10 36 x 6 Ac=1,25ft²	20 x 12 18 x 14 24 x 10 30 x 8 16 x 16 Ac=1,532ft²	18 x 16 20 x 14 24 x 12 30 x 10 36 x 8 Ac=1,82ft²	18 x 16 20 x 16 24 x 14 Ac=2,10ft²
CFM		deflection 1 2 3 4	deflection 1 2 3 4	deflection 1 2 3 4	deflection 1 2 3 4	deflection 1 2 3 4	deflection 1 2 3 4	deflection 1 2 3 4	deflection 1 2 3 4
150	neck velocity/N.C. throw in feet total pressure	180 12 10 8 8 ,014/-							
175	neck velocity/N.C. throw in feet total pressure	220 14 12 10 9 ,018/-							
200	neck velocity/N.C. throw in feet total pressure	250 15131110 ,020/-	225 15131110 ,017/-	200 1412109 ,015/-					
250	neck velocity/N.C. throw in feet total pressure	300 19161312 .034/-	180 16141110 .020/-	300 18151312 .030/-	200 1412109 .018/-	250 17141211 .025/-			
300	neck velocity/N.C. throw in feet total pressure	375 23191615 ,052/21	225 19161413 ,029/-	375 23191615 ,052/21	225 19161413 ,029/-	375 23191615 ,052/21	225 19161413 ,029/-		
350	neck velocity/N.C. throw in feet total pressure	425 26211918 ,070/23	300 22181514 ,039/-	200 16131211 ,013/-	350 24191615 ,042/20	250 18151413 ,020/-	400 25201817 ,061/22	275 29171514 ,023/-	

Data: Only available as 4 way pattern

"-" indicates less than 20 Db NC rating

L-CLM/L-CLOB - FEATURES

		14 X 10 16 X 8 15 X 9 24x36 Ac=,81ft²	12 x 12 18 x 8 Ac=,87ft²	14 x 12 16 x 10 20 x 8 30 x 6 Ac=1,02ft²	16 x 12 18 x 10 24 x 8 Ac=1,15ft²	14 x 14 20 x 10 36 x 6 Ac=1,25ft²	20 x 12 18 x 14 24 x 10 30 x 8 16 x 16 Ac=1,532ft²	18 x 16 20 x 14 24 x 12 30 x 10 36 x 8 Ac=1,82ft²	18 x 16 20 x 16 24 x 14 Ac=2,10ft²
CFM		deflection 1 2 3 4	deflection 1 2 3 4	deflection 1 2 3 4	deflection 1 2 3 4	deflection 1 2 3 4	deflection 1 2 3 4	deflection 1 2 3 4	deflection 1 2 3 4
400	neck velocity/N.C. throw in feet total pressure	500 30 24 21 20 ,095/28	475 29 23 21 20 ,083/26	380 27 22 19 18 ,066/22	350 25 21 18 17 ,052/20	330 22 19 16 15 ,041/20	275 21 17 15 14 ,029/-	225 17 15 13 12 ,018/-	180 17 14 12 11 ,017/-
450	neck velocity/N.C. throw in feet total pressure	575 33 27 23 22 ,121/31	525 32 27 23 22 ,102/29	470 30 25 22 21 ,084/26	400 28 24 19 18 ,065/24	375 26 21 18 17 ,057/21	300 22 19 17 16 ,038/-	260 19 17 14 13 ,023/-	220 18 15 13 12 ,021/-
500	neck velocity/N.C. throw in feet total pressure	620 38 31 28 26 ,131/33	450 35 29 26 24 ,083/27	275 32 27 24 22 ,029/-	575 30 26 22 21 ,128/31	400 28 23 20 19 ,069/24	250 25 21 18 17 ,027/-	500 21 18 16 15 ,105/29	360 20 17 14 13 ,045/21
600	neck velocity/N.C. throw in feet total pressure		675 45 37 33 31 ,175/36	580 38 33 2927 ,148/34	520 30 26 22 21 ,083/27	475 33 27 23 22 ,101/28	390 29 24 21 20 ,068/23	320 26 21 19 18 ,044/20	270 25 20 17 16 ,040/-
700	neck velocity/N.C. throw in feet total pressure			680 46 39 35 32 .175/37	600 41 34 31 29 .131/34	570 38 32 28 27 .136/32	450 35 28 25 24 090/28	370 28 24 21 20 .059/24	310 28 24 20 19 .055/21
800	neck velocity/N.C. throw in feet total pressure					620 43 36 33 30 ,141/36	525 38 32 28 27 ,105/32	420 33 28 25 24 ,078/26	360 31 26 23 22 ,073/24
900	neck velocity/N.C. throw in feet total pressure						575 44 37 33 31 ,130/35	470 37 31 28 26 ,097/31	420 35 29 26 25 ,093/28
1000	neck velocity/N.C. throw in feet total pressure							550 41 35 31 29 ,119/33	470 38 24 29 27 ,116/30
1100	neck velocity/N.C. throw in feet total pressure							600 44 37 33 31 ,149/36	510 43 36 32 31 ,137/33
1200	neck velocity/N.C. throw in feet total pressure							675 55 46 40 37 ,170/38	570 46 38 34 32 ,155/35
1300	neck velocity/N.C. throw in feet total pressure								610 49 41 37 35 ,166/38

Data: Only available as 4 way pattern

"-" indicates less than 20 Db NC rating