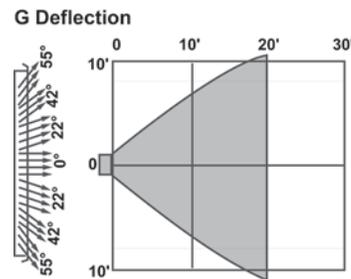
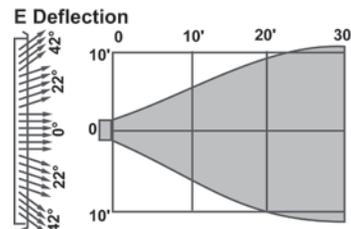
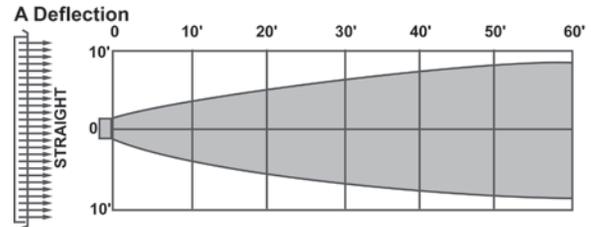


Recommended NC Criteria

	Communication Environment	Typical Occupancy
< NC 25	Extremely quiet environment; suppressed speech is quite audible; suitable for acute pickup of all sounds.	Broadcasting studios, concert halls, music rooms.
NC 30	Very quiet office; suitable for large conferences; telephone use satisfactory.	Residences, theaters, libraries, executive offices, directors rooms.
NC 35	Quiet office; satisfactory for conference at a 15-foot table; normal voice 10 to 30 feet; telephone use satisfactory.	Private offices, schools, hotel guestrooms, courtrooms, churches, hospital rooms.
NC 40	Satisfactory for conferences at a 6-to 8-foot table; normal voice 6 to 12 feet; telephone use satisfactory.	General office, labs, dining rooms.
NC 45	Satisfactory for conferences at a 4- to 5-foot table; normal voice 3 to 6 feet; raised voice 6 to 12 feet; telephone use occasionally difficult.	Retail stores, cafeterias, lobby areas, large drafting and engineering offices, reception areas.
> NC 50	Unsatisfactory for conference of more than two or three persons; normal voice 1 to 2 feet; raised voice 3 to 6 feet; telephone use slightly difficult.	Computer rooms, stenographic pools, print machine rooms, process areas.

Air Pattern Obtained with Various Deflection Settings



Velocity Limitations for Various Applications

The sound caused by an air outlet in operation is directly proportional to the velocity of the air passing through it. By selecting outlets of proper sizes, face velocities can be controlled within safe sound limits.

The following recommended face velocities are within the safe sound limits for most applications, when NC data are not available.

Application	Recommended Velometer Velocities
Broadcasting Studios	500 FPM
Residences	500 to 750 FPM
Apartments	500 to 750 FPM
Churches	500 to 750 FPM
Hotel Guestrooms	500 to 750 FPM
Legitimate Theaters	500 to 1000 FPM
Private Offices, acoustically treated	500 to 1000 FPM
Private Offices, not treated	1000 to 1250 FPM
Motion Picture Theaters	1000 to 1250 FPM
General Offices	1250 to 1500 FPM
Stores, upper floors	1500 FPM
Stores, main floors	1500 FPM
Industrial Buildings	1500 to 2000 FPM



Series AL270 Adjustable Curved-Blade Register

AL271ML One-Way

Face Velocity		300	400	500	600	700	800	900	1000	1100	1200
Pressure Loss		.006	.010	.016	.022	.031	.040	.050	.062	.075	.090
8 x 4	CFM	30	45	55	65	75	85	95	105	120	130
Ak .107	Throw	3.5	5.5	6.5	7.5	9.0	10.0	11.5	12.5	14.0	15.5
10 x 4	CFM	40	55	65	80	90	105	120	130	145	160
Ak .132	Throw	4.0	6.0	7.0	8.5	9.5	11.0	12.5	13.5	15.5	17.0
10 x 6	CFM	60	80	100	120	140	160	180	200	220	240
Ak .200	Throw	5.0	6.5	8.5	10.0	11.5	13.5	15.0	16.0	18.0	20.0
12 x 6	CFM	70	95	120	140	165	190	210	235	260	280
Ak .235	Throw	5.5	7.0	9.0	10.5	12.5	14.5	16.0	18.0	20.0	22.0
10 x 8	CFM	80	105	130	160	185	210	240	265	290	315
Ak .264	Throw	5.5	7.5	9.5	11.5	13.0	15.0	17.0	19.0	21.0	23.0
12 x 8	CFM	95	130	160	190	225	255	290	320	350	385
Ak .320	Throw	6.0	8.5	10.5	12.5	14.5	16.5	19.0	21.0	23.0	25.0
14 x 8	CFM	110	145	180	220	255	290	330	365	400	435
Ak .364	Throw	6.5	8.5	11.0	13.0	15.5	17.5	20.0	22.0	24.0	26.0

Terminal Velocity of 75 FPM

AL272ML Two-Way

Face Velocity		300	400	500	600	700	800	900	1000	1100	1200
Pressure Loss		.006	.010	.016	.022	.031	.040	.050	.062	.075	.090
8 x 4	CFM	30	45	55	65	75	85	95	105	120	130
Ak .107	Throw	2.5	4.0	4.5	5.5	6.5	7.0	8.0	9.0	10.0	11.0
10 x 4	CFM	40	55	65	80	90	105	120	130	145	160
Ak .132	Throw	3.0	4.0	5.0	6.0	6.5	8.0	9.0	9.5	11.0	12.0
10 x 6	CFM	60	80	100	120	140	160	180	200	220	240
Ak .200	Throw	3.5	4.5	6.0	7.0	8.5	9.5	10.5	12.0	13.0	14.0
12 x 6	CFM	70	95	120	140	165	190	210	235	260	280
Ak .235	Throw	4.0	5.0	6.5	7.5	9.0	10.0	11.5	12.5	14.0	15.0
10 x 8	CFM	80	105	130	160	185	210	240	265	290	315
Ak .264	Throw	4.0	5.5	6.5	8.0	9.5	10.5	12.0	13.5	14.5	16.0
12 x 8	CFM	95	130	160	190	225	255	290	320	350	385
Ak .320	Throw	4.5	6.0	7.5	8.5	10.5	11.5	13.5	14.5	16.0	18.0
14 x 8	CFM	110	145	180	220	255	290	330	365	400	435
Ak .364	Throw	4.5	6.0	7.5	9.5	11.0	12.5	14.0	15.5	17.0	19.0

Terminal Velocity of 75 FPM

AL273ML Three-Way

Face Velocity		300	400	500	600	700	800	900	1000	1100	1200
Pressure Loss		.006	.010	.016	.022	.031	.040	.050	.062	.075	.090
10 x 6	Total CFM	60	80	100	120	140	160	180	200	220	240
Ak .200	CFM L/S	22/19	29/26	36/32	43/38	50/45	58/51	65/58	72/64	79/70	86/77
	Throw L/S	3.0/2.0	4.0/4.0	5.0/4.5	6.0/5.0	7.0/6.5	8.0/7.5	9.0/8.5	10.0/9.5	11.0/10.5	12.0/11.5
8 x 8	Total CFM	65	85	110	130	150	170	195	215	235	260
Ak .215	CFM L/S	30/18	39/23	50/30	60/35	68/41	78/46	89/53	98/58	108/64	119/70
	Throw L/S	3.5/3.0	4.5/3.5	6.0/4.5	7.0/5.5	8.0/6.5	9.5/7.0	10.5/8.0	11.5/9.0	13.0/10.0	14.0/11.0
12 x 6	Total CFM	70	95	120	140	165	190	210	235	260	280
Ak .235	CFM L/S	21/25	28/33	36/42	42/49	49/58	57/67	63/74	70/82	77/91	83/98
	Throw L/S	3.0/3.0	4.0/4.0	5.0/5.5	6.0/6.5	7.0/7.5	8.0/8.5	9.0/9.5	9.5/10.5	10.5/11.5	11.5/12.5
10 x 10	Total CFM	100	130	165	200	230	265	295	330	365	395
Ak .330	CFM L/S	36/32	47/42	59/63	72/64	83/74	95/85	106/94	119/106	131/117	142/126
	Throw L/S	4.0/3.5	5.0/4.5	6.5/6.0	7.5/7.0	9.0/8.5	10.0/9.5	11.0/10.5	12.5/12.0	14.0/13.0	15.0/14.0

Terminal Velocity of 75 FPM

AL274ML Four-Way

Face Velocity		300	400	500	600	700	800	900	1000	1100	1200
Pressure Loss		.006	.010	.016	.022	.031	.040	.050	.062	.075	.090
8 x 8	Total CFM	65	85	110	130	150	170	195	215	235	260
Ak .215	CFM L/S	15/18	20/23	25/30	30/35	35/41	39/46	45/53	49/58	54/64	60/70
	Throw L/S	2.5/3.0	3.5/3.5	4.0/4.5	5.0/5.5	6.0/6.5	6.5/7.0	7.5/8.0	8.0/9.0	9.0/10.0	10.0/11.0
10 x 10	Total CFM	100	130	165	200	230	265	295	330	365	395
Ak .330	CFM L/S	18/32	24/42	30/53	36/64	42/74	48/85	53/94	60/106	66/117	71/126
	Throw L/S	2.5/3.5	3.5/4.5	4.5/6.0	5.5/7.0	6.5/8.5	7.0/9.5	8.0/10.5	9.0/12.0	10.0/13.0	10.5/14.0
12 x 12	Total CFM	135	180	225	270	315	360	405	450	495	540
Ak .452	CFM L/S	20/47	27/63	34/79	40/95	47/111	54/126	61/142	67/158	74/174	81/190
	Throw L/S	2.5/4.0	3.5/5.5	4.5/7.0	5.5/8.5	6.5/10.0	7.5/11.0	8.5/12.5	9.0/14.0	10.0/15.5	11.0/17.0

Terminal Velocity of 75 FPM



PERFORMANCE DATA—LIGHT COMMERCIAL

AL278ML Adjustable Fin Register

Deflection A

Face Velocity		300	400	500	600	700	800	900	1000	1100	1200
Pressure Loss		.006	.010	.016	.022	.031	.040	.050	.062	.075	.090
8 x 4	CFM	45	60	80	95	110	125	140	155	170	185
Ak .156	Throw	5.0	6.5	8.5	10.0	12.0	13.0	15.0	16.0	18.0	19.0
10 x 4	CFM	60	80	100	120	140	160	180	200	220	240
Ak .198	Throw	6.0	7.5	9.5	12.0	13.0	15.0	17.0	19.0	20.0	22.0
12 x 4	CFM	70	95	120	145	170	190	215	240	265	290
Ak .240	Throw	6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0	22.0	25.0
10 x 6	CFM	95	125	155	190	220	250	280	315	345	375
Ak .313	Throw	7.0	9.0	12.0	14.0	16.0	19.0	21.0	23.0	26.0	28.0
12 x 6	CFM	115	150	190	225	265	305	340	380	415	455
Ak .379	Throw	8.0	10.0	13.0	15.0	18.0	21.0	23.0	26.0	28.0	31.0
10 x 8	CFM	130	170	215	255	300	340	385	425	470	510
Ak .425	Throw	8.0	11.0	14.0	16.0	19.0	21.0	24.0	27.0	30.0	32.0
14 x 6	CFM	135	180	225	270	310	355	400	445	490	545
Ak .446	Throw	8.0	11.0	14.0	17.0	19.0	22.0	25.0	28.0	30.0	33.0
12 x 8	CFM	160	200	265	320	370	425	475	530	585	635
Ak .530	Throw	9.0	11.0	15.0	18.0	21.0	24.0	27.0	30.0	33.0	36.0
14 x 8	CFM	185	250	310	370	435	495	560	620	680	745
Ak .620	Throw	10.0	13.0	16.0	20.0	23.0	26.0	30.0	33.0	36.0	39.0

Terminal Velocity of 75 FPM

Deflection C

Face Velocity		300	400	500	600	700	800	900	1000	1100	1200
Pressure Loss		.006	.010	.016	.022	.031	.040	.050	.062	.075	.090
8 x 4	CFM	40	55	70	85	100	115	125	140	155	170
Ak .141	Throw	3.5	5.0	6.5	7.5	9.0	10.0	11.0	13.0	14.0	15.0
10 x 4	CFM	55	70	90	105	125	140	160	180	195	215
Ak .178	Throw	4.0	5.5	7.0	8.5	10.0	11.0	13.0	14.0	16.0	17.0
12 x 4	CFM	65	85	110	130	150	175	195	215	240	260
Ak .216	Throw	4.5	6.0	8.0	9.5	11.0	13.0	14.0	16.0	18.0	19.0
10 x 6	CFM	85	115	140	170	195	225	255	280	310	340
Ak .282	Throw	5.5	7.5	9.0	11.0	12.0	14.0	16.0	18.0	20.0	22.0
12 x 6	CFM	105	135	170	205	240	275	310	340	375	410
Ak .342	Throw	6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0	22.0	24.0
10 x 8	CFM	115	155	195	235	275	310	350	390	430	470
Ak .390	Throw	6.0	8.0	11.0	13.0	15.0	17.0	19.0	21.0	23.0	26.0
14 x 6	CFM	125	165	205	245	290	330	370	410	455	495
Ak .412	Throw	7.0	9.0	11.0	13.0	16.0	18.0	20.0	22.0	24.0	27.0
12 x 8	CFM	140	190	235	280	330	375	425	470	515	565
Ak .470	Throw	7.0	9.0	12.0	14.0	16.0	19.0	21.0	23.0	25.0	28.0
14 x 8	CFM	165	220	275	330	385	440	495	550	605	660
Ak .550	Throw	8.0	10.0	13.0	15.0	18.0	20.0	23.0	25.0	28.0	30.0

Terminal Velocity of 75 FPM

Deflection E

Face Velocity		300	400	500	600	700	800	900	1000	1100	1200
Pressure Loss		.006	.010	.016	.022	.031	.040	.050	.062	.075	.090
8 x 4	CFM	40	50	65	75	90	100	115	125	140	150
Ak .127	Throw	3.0	4.0	5.0	5.5	7.0	7.5	8.5	9.5	11.0	11.5
10 x 4	CFM	50	65	80	95	115	130	145	160	180	195
Ak .162	Throw	3.0	4.5	5.5	6.5	7.5	8.5	9.5	11.0	12.0	13.0
12 x 4	CFM	60	80	100	120	140	160	175	195	215	235
Ak .197	Throw	4.0	4.5	6.0	7.5	8.5	10.0	11.0	12.0	13.0	14.0
10 x 6	CFM	75	105	130	155	180	205	230	255	285	310
Ak .257	Throw	4.0	5.5	7.5	8.5	9.5	11.0	12.0	14.0	15.0	17.0
12 x 6	CFM	95	125	155	185	220	250	280	310	340	375
Ak .311	Throw	4.5	6.0	7.5	9.0	11.0	12.0	14.0	15.0	17.0	18.0
10 x 8	CFM	105	140	175	210	245	280	315	350	385	420
Ak .350	Throw	5.0	6.0	8.0	10.0	11.0	13.0	14.0	16.0	18.0	19.0
14 x 6	CFM	110	145	185	220	255	290	330	365	400	440
Ak .365	Throw	5.5	6.5	8.5	10.0	11.0	13.0	15.0	16.0	18.0	20.0
12 x 8	CFM	130	175	220	260	305	350	390	435	480	520
Ak .435	Throw	5.0	7.0	9.0	11.0	13.0	15.0	16.0	18.0	20.0	22.0
14 x 8	CFM	155	205	255	305	355	410	460	510	560	610
Ak .510	Throw	6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0	22.0	23.0

Terminal Velocity of 75 FPM

Deflection G

Face Velocity		300	400	500	600	700	800	900	1000	1100	1200
Pressure Loss		.006	.010	.016	.022	.031	.040	.050	.062	.075	.090
8 x 4	CFM	35	45	60	70	85	95	105	120	130	140
Ak .118	Throw	2.0	2.5	3.5	4.0	5.0	5.5	6.0	6.5	7.5	8.0
10 x 4	CFM	45	60	75	90	105	120	135	150	165	180
Ak .149	Throw	2.0	3.0	3.5	4.5	5.0	6.0	6.5	7.5	8.0	9.0
12 x 4	CFM	55	70	90	110	125	145	165	180	200	215
Ak .181	Throw	2.5	3.0	4.0	5.0	5.5	6.5	7.5	8.0	9.0	10.0
10 x 6	CFM	70	95	120	140	165	190	210	235	260	285
Ak .236	Throw	3.0	4.0	5.0	5.5	6.5	7.5	8.5	9.5	10.0	11.0
12 x 6	CFM	85	115	145	170	200	230	255	285	315	345
Ak .286	Throw	3.0	4.0	5.0	6.0	7.0	8.5	9.0	10.0	11.0	12.0
10 x 8	CFM	95	130	160	190	225	255	290	320	350	385
Ak .320	Throw	3.0	4.5	5.5	6.5	7.5	8.5	10.0	11.0	12.0	13.0
14 x 6	CFM	100	135	170	200	235	270	300	335	370	405
Ak .336	Throw	3.5	4.5	5.5	6.5	8.0	9.0	10.0	11.0	12.0	13.0
12 x 8	CFM	120	160	200	235	275	315	355	395	435	475
Ak .395	Throw	3.5	5.0	6.0	7.0	8.0	10.0	11.0	12.0	13.0	15.0
14 x 8	CFM	140	185	230	275	320	370	415	460	505	550
Ak .460	Throw	4.0	5.5	6.5	8.0	9.0	10.5	11.5	13.0	14.5	15.5

Terminal Velocity of 75 FPM