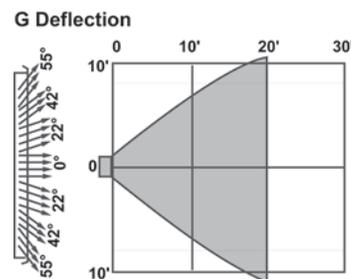
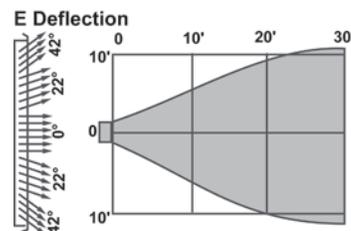
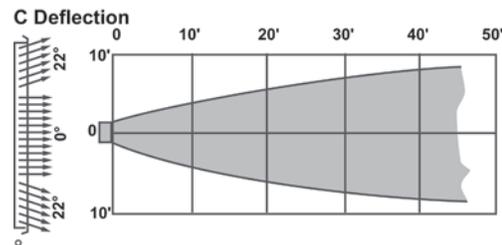
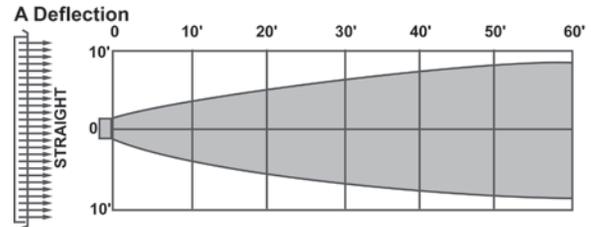


Recommended NC Criteria

	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



63GH Stamped-Face Return Grille

Face Velocity*		300	400	500	600
6 x 4	CFM	33	44	55	66
Ak .111	Ps	.010	.018	.029	.041
6 x 6	CFM	50	67	83	100
Ak .167	Ps	.010	.018	.029	.041
8 x 4	CFM	44	59	74	89
Ak .148	Ps	.010	.018	.029	.041
8 x 6	CFM	67	89	112	134
Ak .223	Ps	.010	.018	.029	.041
8 x 8	CFM	90	120	150	179
Ak .299	Ps	.010	.018	.029	.041
10 x 4	CFM	56	74	93	111
Ak .186	Ps	.010	.018	.029	.041
10 x 6	CFM	84	112	140	168
Ak .280	Ps	.010	.018	.029	.041
10 x 8	CFM	112	150	187	225
Ak .375	Ps	.010	.018	.029	.041
10 x 10	CFM	141	188	235	282
Ak .470	Ps	.010	.018	.029	.041
12 x 6	CFM	101	135	168	202
Ak .337	Ps	.010	.018	.029	.041
12 x 8	CFM	135	180	226	271
Ak .451	Ps	.010	.018	.029	.041
12 x 10	CFM	170	226	283	339
Ak .566	Ps	.010	.018	.029	.041
12 x 12	CFM	204	272	340	408
Ak .681	Ps	.010	.018	.029	.041
12 x 18	CFM	308	411	513	616
Ak 1.027	Ps	.010	.018	.029	.041
14 x 6	CFM	118	158	197	236
Ak .394	Ps	.010	.018	.029	.041
14 x 8	CFM	158	211	264	316
Ak .527	Ps	.010	.018	.029	.041
14 x 10	CFM	198	265	331	397
Ak .661	Ps	.010	.018	.029	.041
14 x 12	CFM	239	318	398	477
Ak .796	Ps	.010	.018	.029	.041
14 x 14	CFM	279	372	465	558
Ak .930	Ps	.010	.018	.029	.041
14 x 18	CFM	360	480	600	720
Ak 1.200	Ps	.010	.018	.029	.041

Face Velocity*		300	400	500	600
16 x 6	CFM	135	180	226	271
Ak .451	Ps	.010	.018	.029	.041
16 x 8	CFM	181	242	302	362
Ak .604	Ps	.010	.018	.029	.041
16 x 10	CFM	227	303	379	454
Ak .757	Ps	.010	.018	.029	.041
16 x 12	CFM	273	364	455	547
Ak .911	Ps	.010	.018	.029	.041
16 x 14	CFM	320	426	533	639
Ak 1.065	Ps	.010	.018	.029	.041
16 x 16	CFM	366	488	610	732
Ak 1.219	Ps	.010	.018	.029	.041
16 x 24	CFM	552	736	920	1104
Ak 1.840	Ps	.010	.018	.029	.041
18 x 6	CFM	153	203	254	305
Ak .508	Ps	.010	.018	.029	.041
18 x 18	CFM	465	619	774	929
Ak 1.548	Ps	.010	.018	.029	.041
20 x 6	CFM	170	226	283	339
Ak .566	Ps	.010	.018	.029	.041
20 x 10	CFM	285	380	475	570
Ak .949	Ps	.010	.018	.029	.041
20 x 12	CFM	343	457	571	685
Ak 1.142	Ps	.010	.018	.029	.041
20 x 14	CFM	401	534	668	801
Ak 1.335	Ps	.010	.018	.029	.041
20 x 20	CFM	575	767	959	1150
Ak 1.917	Ps	.010	.018	.029	.041
20 x 24	CFM	692	923	1153	1384
Ak 2.307	Ps	.010	.019	.029	.042
20 x 25	CFM	721	962	1202	1442
Ak 2.404	Ps	.010	.019	.029	.042

Face Velocity*		300	400	500	600
24 x 4	CFM	135	180	226	271
Ak .451	Ps	.010	.018	.029	.041
24 x 6	CFM	204	272	340	408
Ak .681	Ps	.010	.018	.029	.041
24 x 8	CFM	273	364	455	547
Ak .911	Ps	.010	.018	.029	.041
24 x 10	CFM	343	457	571	685
Ak 1.142	Ps	.010	.018	.029	.041
24 x 12	CFM	412	550	687	825
Ak 1.374	Ps	.010	.018	.029	.041
24 x 14	CFM	482	643	803	964
Ak 1.607	Ps	.010	.018	.029	.041
24 x 24	CFM	832	1110	1387	1665
Ak 2.775	Ps	.010	.019	.029	.042
30 x 4	CFM	170	226	283	339
Ak .566	Ps	.010	.018	.029	.041
30 x 6	CFM	256	341	427	512
Ak .853	Ps	.010	.018	.029	.041
30 x 8	CFM	343	457	571	685
Ak 1.142	Ps	.010	.018	.029	.041
30 x 10	CFM	430	573	716	859
Ak 1.432	Ps	.010	.018	.029	.041
30 x 12	CFM	517	689	862	1034
Ak 1.723	Ps	.010	.018	.029	.041
30 x 14	CFM	604	806	1007	1209
Ak 2.015	Ps	.010	.018	.029	.042
30 x 18	CFM	780	1040	1300	1560
Ak 2.599	Ps	.010	.019	.029	.042
30 x 20	CFM	868	1157	1446	1735
Ak 2.892	Ps	.010	.019	.029	.042
30 x 24	CFM	1044	1392	1740	2088
Ak 3.479	Ps	.010	.019	.029	.042
30 x 30	CFM	1309	1745	2181	2618
Ak 4.363	Ps	.010	.019	.029	.042
36 x 6	CFM	308	411	513	616
Ak 1.027	Ps	.010	.018	.029	.041
36 x 8	CFM	412	550	687	825
Ak 1.374	Ps	.010	.018	.029	.041

*Filter grilles: Tested without filters. Typical capacity is 2 CFM per square inch of nominal filter area. Recommended face velocity is 300-450 FPM. Velocities higher will decrease filter performance, increase flow resistance, and possibly be of noise concern. Velocity measured 1" from face.