

S Series (Page 43-47)

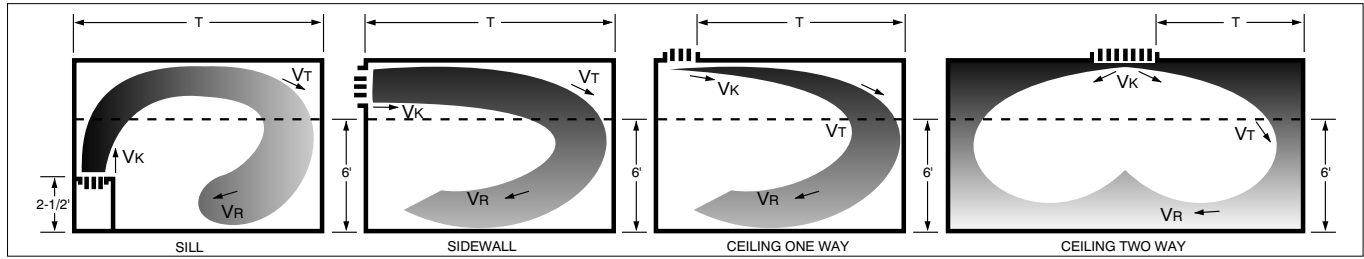


Table 1 - Supply Air

Type 50 (1/2" Slot)

CFM/Ft of total Slot length	Number of Slots	Min. P _s in H ₂ O	Outlet Velocity (V _k) FPM	Throw (T) in Feet			Minimum Ceiling Height in Feet		NC
				Ceiling		Sidewall	Sill		
				Min.-Max.	Min.-Max.	Min.-Max.	@ -18F	T	
10	1	.02	500	5-7	3-5	1-2	7½	9	<20
	2	<.01	335	4-6	2-4	1-2			
20	1	.08	1000	10-13	8-11	1-3	8	9	<20
	2	.02	670	8-11	6-9	2-3			
	3	.01	400	6-9	4-7	1-2			
30	1	.08	1500	11-16	10-14	4-6	9	10	<20
	2	.05	1000	10-14	8-12	3-4			
	3	.02	600	8-11	6-9	2-3			
	4	.01	430	7-9	5-7	1-2			
40	2	.08	1330	13-17	11-15	4-6	9	11	<20
	3	.04	800	10-14	8-12	3-5			
	4	.02	570	9-12	7-10	2-3			
	5	.01	445	8-11	6-9	2-3			
	3	.06	1000	11-15	9-13	4-6			
50	4	.03	710	10-14	8-12	3-4	9½	11	<20
	5	.02	560	9-13	7-11	2-4			
	6	.01	500	8-12	7-10	1-3			
	3	.08	1200	13-17	11-15	5-8			
	4	.05	855	12-16	10-14	4-7			
	5	.03	670	11-15	9-13	3-6			
60	6	.02	600	10-14	8-12	3-5	9½	12	<20
	7	.01	500	9-13	7-11	2-4			
	3	.12	1400	15-20	13-18	6-11			
	4	.06	1000	13-18	11-16	5-9			
	5	.04	780	12-16	10-14	4-7			
	6	.03	700	11-15	9-13	3-6			
	7	.02	580	10-15	8-13	2-5			
80	4	.08	1140	14-20	12-18	6-11	10½	12½	<20
	5	.05	890	13-19	11-17	5-10			
	6	.04	800	13-18	11-16	5-9			
	7	.03	670	13-17	11-15	4-8			
	8	.02	570	12-16	10-14	3-7			
	4	.10	1280	17-24	15-21	8-14			
	5	.07	1000	16-22	14-20	7-13			
	6	.05	900	16-21	14-19	7-12			
90	7	.04	750	15-20	13-18	6-11	11	13	<20
	8	.03	640	14-18	12-16	5-9			
	9	.02	600	13-17	11-15	5-8			
	5	.09	1120	18-25	16-22	9-15			
	6	.06	1000	17-24	15-21	8-14			
	7	.05	830	16-23	14-20	7-13			
	8	.03	710	14-20	12-18	6-11			
	9	.03	670	13-19	11-17	5-10			
	10	.02	590	12-18	10-16	5-10			
120	6	.09	1200	19-27	17-24	10-16	11½	13	<20
	7	.07	1000	18-25	16-23	8-15			
	8	.05	860	17-25	15-22	7-14			
	9	.04	800	16-24	14-21	6-13			
	10	.03	705	15-22	13-19	5-11			
	7	.10	1170	20-30	18-27	10-19			
	8	.06	1000	19-28	17-25	9-17			
	9	.05	930	18-27	16-24	8-16			
	10	.04	825	17-25	15-22	7-14			
	160	8	.08	1140	21-32	19-29			
9		.07	1070	20-30	18-27	9-18			
10		.05	940	19-28	17-25	8-17			
180	8	.10	1280	24-35	21-31	12-22	12	15	<20
	9	.08	1200	23-34	20-30	11-21			
	10	.07	1060	22-32	19-29	10-20			
200	9	.10	1335	25-39	22-35	-	12	15	<20
	10	.08	1175	24-37	21-33	-			

Outlet Velocity (V _k) FPM										
500	600	700	800	900	1000	1200	1400	1600	1800	2000
Total Pressure (P _s) inches H ₂ O										
.02	.02	.03	.04	.05	.06	.09	.12	.16	.20	.25

Symbols:

- V_t Terminal Velocity in FPM
- V_r Room Velocity in FPM
- V_k Face Velocity in FPM
- A_k Outlet Area in Square Feet
- A_n Neck Area in Square Feet
- P_s Static Pressure in H₂O
- NC 18dB Room Attenuation
- T Throw in Feet: see Note 6.
- ΔT Temperature Differential

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Table 1 - Supply Air

Type 75 (3/4" Slot)

CFM per Foot	Number of Slots	Min. P _s in H ₂ O	Outlet Velocity (V _k) FPM	Throw (T) in Feet			Minimum Ceiling Height in Feet				NC				
				Ceiling	Sidewall	Sill	@ -18F T		@ -25F T						
				Min.-Max.	Min.-Max.	Min.-Max.									
10	1	.01	335	4-6	2-4	1-2	7½		9		<20				
20	1	.04	670	8-11	6-9	2-3	8		9		20				
	2	<.01	400	6-9	4-7	1-2					<20				
30	1	.09	1000	10-14	8-12	3-4	9		10		25				
	2	.02	600	8-11	6-9	2-3					20				
	3	<.01	430	7-9	5-7	1-2					<20				
40	1	.16	1340	13-17	11-15	4-6	9		11		30				
	2	.04	800	10-14	8-12	3-4					25				
	3	.02	575	9-12	7-10	2-3					20				
	4	.01	445	8-11	6-9	2-3					<20				
50	2	.06	1000	11-15	9-13	4-6	9½		11		25				
	3	.03	715	10-14	8-12	3-4					20				
	4	.02	555	9-13	7-11	2-4					<20				
	5	<.01	415	7-12	6-10	2-3					<20				
	2	.09	1200	13-17	11-15	5-8					9½		12		30
3	.04	860	12-16	10-14	4-7	25									
4	.02	665	11-15	9-13	3-6	20									
5	.01	500	9-13	7-11	3-4	<20									
70	2	.13	1400	15-20	13-18	6-11	10		12		30				
	3	.06	1000	13-18	11-16	5-9					25				
	4	.03	775	12-16	10-14	4-7					20				
	5	.02	585	10-15	8-13	3-5					<20				
	6	.01	500	9-14	7-12	2-5					<20				
	3	.07	1140	14-20	12-18	6-11					10½		12½		30
4	.04	885	13-19	11-17	5-10	25									
5	.03	665	13-17	11-15	4-8	20									
6	.02	575	12-16	10-14	3-7	<20									
7	<.01	500	11-15	9-13	3-6	<20									
90	3	.09	1290	17-24	15-21	8-14	11		13		30				
	4	.05	1000	16-22	14-20	7-13					25				
	5	.03	750	15-20	13-18	6-11					20				
	6	.02	645	14-18	12-16	5-9					20				
	7	.01	560	13-17	11-15	4-8					<20				
	3	.13	1430	19-26	17-23	10-16					11		13		35
	4	.06	1110	18-25	16-22	9-15									30
5	.04	830	16-23	14-20	7-13	25									
6	.03	715	14-20	12-18	6-11	20									
7	.02	630	13-19	11-17	5-10	<20									
120	4	.09	1330	19-27	17-24	10-16	11½		13		30				
	5	.06	1000	18-26	16-23	8-15					25				
	6	.04	860	17-25	15-22	7-14					20				
	7	.03	750	16-23	14-20	6-12					20				
	8	.02	630	15-20	13-18	5-10					<20				
	5	.08	1170	20-30	18-27	10-19					11½		14		30
	6	.06	1000	19-28	17-25	9-17									25
	7	.04	875	18-26	16-23	8-15									25
8	.03	740	16-24	14-21	6-13	20									
9	.02	665	15-21	13-19	5-11	<20									
160	6	.07	1150	21-32	19-29	10-20	12		15		25				
	7	.05	1000	20-30	18-27	9-18					25				
	8	.04	840	18-27	16-24	8-16					20				
	9	.03	760	17-26	15-23	6-14					<20				
	10	.02	695	16-25	14-22	5-13					<20				
180	6	.09	1290	24-35	21-31	12-22	12		15		30				
	7	.07	1130	23-34	20-30	11-21					30				
	8	.05	950	20-31	18-28	9-19					25				
	9	.04	860	19-30	17-27	8-18					20				
	10	.03	780	18-29	16-26	7-17					<20				
200	6	.11	1440	26-40	23-36	-	12		15		30				
	7	.08	1250	25-38	22-34	-					30				
	8	.06	1110	24-36	21-32	-					25				
	9	.05	955	22-33	20-30	-					25				
	10	.04	870	21-31	19-28	-					20				
250	8	.10	1315	26-46	23-41	-	13		15		35				
	9	.07	1190	25-42	22-38	-					30				
	10	.06	1085	24-39	21-35	-					25				

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Table 1 - Supply Air
Type 10 (1" Slot)

CFM per Foot	Number of Slots	Min. P _s in H ₂ O	Outlet Velocity (V _k) FPM	Throw (T) in Feet			Minimum Ceiling Height in Feet				NC
				Ceiling		Sidewall	Sill				
				Min.-Max.	Min.-Max.	Min.-Max.	@ -18F	T	@ -25F	T	
20	1	.02	500	6-8	4-7	1-2	8		9	20	
30	1	.03	750	9-13	7-10	2-3	9		10	20	
	2	.02	500	7-9	5-7	1-2				20	
40	1	.06	1000	10-14	9-14	4-6	9		11	25	
	2	.03	670	8-10	6-9	2-3				20	
50	1	.09	1250	12-15	10-14	3-5				30	
	2	.04	835	10-14	8-12	3-4	9½		11	20	
	3	.02	555	9-11	7-10	2-3				20	
60	2	.06	1000	13-15	9-13	4-6				30	
	3	.03	665	10-13	7-11	2-4	9½		12	20	
	4	.02	500	8-11	6-9	2-3				20	
70	2	.09	1165	13-17	11-15	5-8				30	
	3	.04	780	11-16	9-14	4-6	10		12	25	
	4	.02	585	10-14	7-11	3-4				20	
80	2	.11	1335	15-19	14-17	6-10				35	
	3	.05	890	12-17	10-14	4-7	10½		12½	25	
	4	.03	665	10-14	8-12	3-5				20	
	5	.02	533	9-13	7-11	2-4				20	
90	3	.06	1000	14-19	11-17	5-10				30	
	4	.04	750	13-18	11-15	4-8	11		13	20	
	5	.02	600	12-16	10-14	3-7				20	
100	6	.02	500	11-15	9-13	3-6				20	
	3	.08	1110	16-21	14-20	7-12				30	
	4	.04	835	15-20	13-28	6-11	11		13	25	
	5	.03	665	14-18	12-16	5-9				20	
120	6	.02	555	13-17	11-15	4-8				20	
	3	.11	1335	18-25	16-22	8-13				35	
	4	.06	1000	17-24	15-20	7-13	11½		13	30	
	5	.04	800	16-23	14-21	6-12				25	
140	6	.03	665	15-21	13-19	5-11				20	
	7	.02	570	14-20	12-17	4-10				20	
	4	.09	1165	18-25	16-21	8-15				30	
	5	.05	935	18-26	16-22	8-14	11½		14	30	
160	6	.04	780	17-25	15-22	7-14				25	
	7	.03	665	16-23	14-20	6-12				20	
	8	.02	585	15-20	13-20	5-10				20	
	4	.11	1335	19-27	17-24	10-16				35	
180	5	.07	1065	18-26	16-23	8-15	12		15	30	
	6	.05	890	17-25	15-22	7-14				25	
	7	.04	760	16-23	14-20	6-12				25	
	8	.03	665	15-20	13-18	5-10				20	
200	9	.02	590	14-19	12-17	4-9				20	
	5	.09	1200	20-30	18-27	10-19				35	
	6	.06	1000	19-28	17-25	9-17	12		15	30	
	7	.05	850	18-26	16-23	8-15				25	
250	8	.04	750	16-24	14-21	6-13				20	
	9	.03	665	15-21	13-19	5-11				20	
	10	.02	600	14-19	12-18	4-10				20	
	5	.11	1335	23-33	20-30	12-21				35	
300	6	.08	1110	21-32	19-29	10-20	12		15	30	
	7	.06	950	20-31	18-27	9-18				30	
	8	.04	835	18-27	16-24	8-16				25	
	9	.03	740	17-26	15-23	6-14				20	
350	10	.03	665	16-25	14-22	5-10				20	
	6	.12	1390	24-35	21-31	-				35	
	7	.09	1190	23-34	20-30	-	13		15	35	
	8	.07	1040	21-32	19-28	-				30	
300	9	.05	925	20-31	18-27	-				25	
	10	.04	833	19-30	17-26	-				25	
	7	.13	1430	25-40	23-35	-				35	
	8	.10	1250	24-36	22-32	-	13		16	35	
300	9	.08	1110	23-34	20-30	-				30	
	10	.06	1000	22-32	19-28	-				30	
	8	.13	1460	27-47	24-43	-				40	
350	9	.11	1300	26-45	23-41	-	14		16	35	
	10	.09	1165	25-42	22-39	-				30	

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NOTES:

- Table 1 based on 4-foot diffuser length. For longer lengths, correct throw and NC per Table 2.
- For 2-way ceiling throw, proportion cfm and number of slots in each direction of T and select from 1-way data, Table 1.
- When using continuous diffuser lengths with alternate active and inactive sections, a reduction in throw can be obtained by omitting the factors contained in Table 2.
- P_s constant for horizontal 1-way, 2-way and vertical pattern adjustment.
- Supply air temperature effect on horizontal throw is shown in Table 3. Vertical throw at varying supply air temperatures is shown in Table 4.
- Terminal velocities (V_t) at the minimum and maximum throw (T) positions are rated at 150 FPM and 100 FPM respectively with corresponding room velocities (V_r) of 50 FPM and 35 FPM.

Table 2 - Continuous Diffuser Length Factors

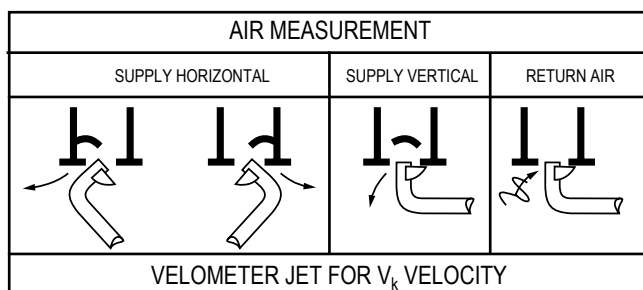
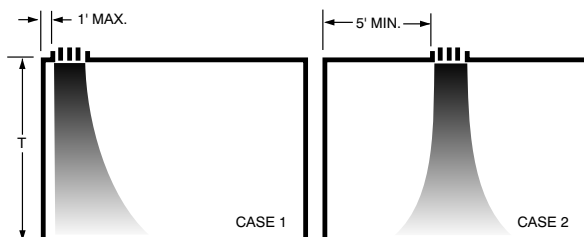
Modify Table 1 by listed values for diffuser lengths above 4 feet.				
Diffuser Length in Feet	Throw (T)			NC
	Ceiling Min.-Max.	Sidewall Min.-Max.	Sill Min.-Max.	
4-6	No change			+ 0
7-20	T x 1.10			+ 5
21-100	T x 1.15			+ 10

Table 3 - Supply Air Temperature Factors

Multiply Throw in Table 1 (or factor in Table 2 if used) by listed value.				
Ceiling Sidewall Sill	@-20F	T	@ 0F	T
		T x 1.00		T x 1.10

Table 4 - Vertical Down-Throw and Supply Air Temperature Factors

Multiply Throw-Sidewall in Table 1 (or factor in Table 2 if used) by listed value.				
Case	@-20F Cooling	T	@ 0F Ventilating	T
Case 1	T x 1.00		T x .90	T x .60
Case 2	T x .70		T x .60	T x .40



Type 50 Supply Diffuser Areas per Foot of Length

	No. of Slots									
	1	2	3	4	5	6	7	8	9	10
A_k Area	.02	.03	.05	.07	.09	.10	.12	.14	.15	.17
A_n Area	.08	.17	.25	.33	.42	.50	.58	.67	.75	.84

Type 75 Supply Diffuser Areas per Foot of Length

	No. of Slots									
	1	2	3	4	5	6	7	8	9	10
A_k Area	.03	.05	.07	.09	.12	.14	.16	.19	.21	.23
A_n Area	.12	.24	.36	.48	.60	.72	.84	.96	1.10	1.20

Type 10 Supply Diffuser Areas per Foot of Length

	No. of Slots									
	1	2	3	4	5	6	7	8	9	10
A_k Area	.04	.06	.09	.12	.15	.18	.21	.24	.27	.30
A_n Area	.17	.33	.50	.67	.83	1.00	1.17	1.33	1.50	1.67

A_k constant for horizontal 1-way, 2-way, and vertical pattern.

$$CFM = A_k \times \text{length in feet} \times V_k$$

Type 50 Return Air CFM per Foot of Length*

No. of Slots	A_k Area	NC 20-25 Application Nonducted		NC 30 Application Ducted		NC 35-40 Application Ducted	
		-.02" P_s	-.03" P_s	-.08" P_s	-.10" P_s	-.15" P_s	-.20" P_s
		CFM	CFM	CFM	CFM	CFM	CFM
1	.03	15	20	30	35	40	45
2	.06	35	45	70	80	95	110
3	.08	55	70	110	125	150	175
4	.11	70	85	140	155	190	220
5	.14	90	110	180	200	245	285
6	.16	110	135	220	245	300	345
7	.20	130	160	260	290	355	410
8	.22	140	170	280	310	385	440
9	.25	165	200	330	370	450	520
10	.28	185	225	370	415	505	585

Type 75 Return Air CFM per Foot of Length*

No. of Slots	A_k Area	NC 20-25 Application Nonducted		NC 30 Application Ducted		NC 35-40 Application Ducted	
		-.02" P_s	-.03" P_s	-.08" P_s	-.10" P_s	-.15" P_s	-.20" P_s
		CFM	CFM	CFM	CFM	CFM	CFM
1	.04	25	35	50	65	75	90
2	.08	50	60	100	110	135	160
3	.12	80	100	160	180	220	250
4	.16	100	120	200	225	275	320
5	.20	130	160	260	295	360	420
6	.24	160	195	320	360	440	510
7	.28	175	215	350	390	475	550
8	.32	200	245	400	445	545	630
9	.36	235	290	470	525	640	740
10	.40	260	320	520	580	710	820

Type 10 Return Air CFM per Foot of Length*

No. of Slots	A_k Area	NC 20-25 Application Nonducted		NC 30 Application Ducted		NC 35-40 Application Ducted	
		-.02" P_s	-.03" P_s	-.08" P_s	-.10" P_s	-.15" P_s	-.20" P_s
		CFM	CFM	CFM	CFM	CFM	CFM
1	.06	35	43	70	80	95	110
2	.11	70	85	140	155	190	220
3	.17	105	130	210	235	285	330
4	.23	140	170	280	310	380	440
5	.28	175	215	350	390	475	550
6	.33	210	255	420	465	570	660
7	.39	245	300	490	545	665	770
8	.44	280	340	560	620	760	880
9	.50	315	385	630	700	855	990
10	.55	350	425	700	775	950	1100

* Capacity based on diffuser without pattern controller. When pattern controller is used, CFM capacities are reduced by 65% at listed P_s , NC, and A_k .