ENGINEERING DATA

MSR, AMSR: Round Neck

Neck Velocity		300		400		500		600		700		800		900	
Total Pressure		0.058		0.092		0.131		0.179		0.233		0.296		0.442	
6x6 6	Total CFM	78		98		117		137		156		176		215	
	NC	10		16		21		25		28		31		36	
	Side	1	2	1	2	1	2	1	2	1	2	1	2	1	2
1SQ	CFM/Side	78	0	98	0	117	0	137	0	156	0	176	0	215	0
	Throw (ft.)	5-7-15		6-9-18		7-11-20		9-13-22		10-15-23		11-17-25		14-19-27	
2SQ	CFM/Side	39	39	49	49	59	59	69	69	78	78	88	88	108	108
	Throw (ft.)	3-5-10	3-5-10	4-6-13	4-6-13	5-7-14	5-7-14	6-9-16	6-9-16	7-10-17	7-10-17	7-11-18	7-11-18	9-14-20	9-14-20
2SC	CFM/Side	39	39	49	49	59	59	69	69	78	78	88	88	108	108
	Throw (ft.)	3-5-10	3-5-10	4-6-13	4-6-13	5-7-14	5-7-14	6-9-15	6-9-15	6-10-16	6-10-16	7-11-18	7-11-17	9-13-19	9-13-19
3SQ	CFM/Side	20	29	25	37	29	44	34	51	39	59	44	66	54	81
	Throw (ft.)	2-4-7	3-4-8	3-5-8	3-5-9	4-6-9	4-6-10	4-7-9	5-7-10	5-7-10	6-8-11	6-7-11	6-8-12	7-8-12	7-9-13
4SQ	CFM/Side	20	20	25	25	29	29	34	34	39	39	44	44	54	54
	Throw (ft.)	2-4-7	2-4-7	3-5-8	3-5-8	4-6-9	4-6-9	4-7-9	4-7-9	5-7-10	5-7-10	6-7-11	6-7-11	7-8-12	7-8-12

Neck Velocity		300		400		500		600		700		800		900	
Total Pressure		0.041		0.058		0.079		0.103		0.131		0.196		0.273	
9x9 6	Total CFM	98		117		137		156		176		215		254	
	NC	9		14		18		21		25		30		34	
	Side	1	2	1	2	1	2	1	2	1	2	1	2	1	2
1SQ	CFM/Side	98	0	117	0	137	0	156	0	176	0	215	0	254	0
	Throw (ft.)	6-9-18		7-11-20		9-15-22		10-15-23		11-17-25		14-19-27		17-21-30	
2SQ	CFM/Side	49	49	59	59	69	69	78	78	88	88	108	108	127	127
	Throw (ft.)	4-6-13	4-6-13	5-7-14	5-7-14	6-9-16	6-9-16	7-10-17	7-10-17	7-11-18	7-11-18	9-14-20	9-14-20	11-15-21	11-15-21
2SC	CFM/Side	49	49	59	59	69	69	78	78	88	88	108	108	127	127
	Throw (ft.)	4-6-13	4-6-13	5-7-14	5-7-14	6-9-15	6-9-15	6-10-16	6-10-16	7-11-17	7-11-17	9-13-19	9-13-19	11-15-21	11-15-21
3SQ	CFM/Side	25	37	29	44	34	51	39	59	44	66	54	81	64	95
	Throw (ft.)	3-5-8	3-5-9	4-6-9	4-6-10	4-7-9	5-7-10	5-7-10	6-8-11	6-7-11	6-8-12	7-8-12	7-9-13	7-9-13	8-10-14
4SQ	CFM/Side	25	25	29	29	34	34	39	39	44	44	54	54	64	64
	Throw (ft.)	3-5-8	3-5-8	4-6-9	4-6-9	4-7-9	4-7-9	5-7-10	5-7-10	6-7-11	6-7-11	7-8-12	7-8-12	7-9-13	7-9-13

Neck Velocity		300		400		500		600		700		800		900	
Total Pressure		0.046		0.072		0.104		0.142		0.186		0.235		0.350	
9x9 8	Total CFM	139		174		209		244		279		314		383	
	NC	10		16		21		25		28		31		36	
	Side	1	2	1	2	1	2	1	2	1	2	1	2	1	2
1SQ	CFM/Side	139	0	174	0	209	0	244	0	279	0	314	0	383	0
	Throw (ft.)	7-10-21		8-13-24		10-15-27		12-18-29		14-21-31		15-23-33		19-26-37	
2SQ	CFM/Side	70	70	87	87	105	105	122	122	140	140	157	157	192	192
	Throw (ft.)	4-7-14	4-7-14	5-8-17	5-8-17	7-10-19	7-10-19	8-12-21	8-12-21	9-14-22	9-14-22	10-15-24	10-15-24	12-19-26	12-19-26
2SC	CFM/Side	70	70	87	87	105	105	122	122	140	140	157	157	192	192
	Throw (ft.)	4-6-13	4-6-13	5-8-17	5-8-17	6-10-19	6-10-19	8-12-21	8-12-21	9-13-22	9-13-22	10-15-23	10-15-23	12-18-26	12-18-26
3SQ	CFM/Side	35	52	44	65	52	78	61	92	70	105	79	118	96	144
	Throw (ft.)	3-5-9	4-6-11	4-7-11	5-7-12	5-8-12	6-9-13	13-16-22	7-10-14	7-9-14	8-11-15	8-10-14	9-11-16	9-11-16	10-12-18
4SQ	CFM/Side	35	35	44	44	52	52	61	61	70	70	79	79	96	96
	Throw (ft.)	3-5-9	3-5-9	4-7-11	4-7-11	5-8-12	5-8-12	6-9-13	6-9-13	7-9-14	7-9-14	8-10-14	8-10-14	9-11-16	9-11-16

Neck Velocity		300		400		500		600		700		800		900	
Total Pressure		0.041		0.059		0.080		0.104		0.132		0.197		0.275	
12x12 8	Total CFM	174		209		244		279		314		383		453	
	NC	11		16		20		24		27		32		36	
	Side	1	2	1	2	1	2	1	2	1	2	1	2	1	2
1SQ	CFM/Side	174	0	209	0	244	0	279	0	314	0	383	0	453	0
	Throw (ft.)	8-13-24		10-15-27		12-18-29		14-21-31		15-23-33		19-26-37		22-28-40	
2SQ	CFM/Side	87	87	105	105	122	122	140	140	157	157	192	192	227	227
	Throw (ft.)	5-8-17	5-8-17	7-10-19	7-10-19	8-12-24	8-12-24	9-14-22	9-14-22	10-15-24	10-15-24	12-19-26	12-19-26	15-20-29	15-20-29
2SC	CFM/Side	87	87	105	105	122	122	140	140	157	157	192	192	227	227
	Throw (ft.)	5-8-17	5-8-17	6-10-19	6-10-19	8-12-21	8-12-21	9-13-22	9-13-22	10-15-23	10-15-23	12-18-26	12-18-26	15-20-28	15-20-28
3SQ	CFM/Side	44	65	52	78	61	92	70	105	79	118	96	114	113	170
	Throw (ft.)	4-7-11	5-7-12	5-8-12	6-9-13	6-9-13	7-10-14	7-9-14	8-11-15	8-10-14	9-11-16	9-11-16	10-12-18	10-12-18	11-14-19
4SQ	CFM/Side	44	44	52	52	61	61	70	70	79	79	96	96	113	113
	Throw (ft.)	4-7-11	4-7-11	5-8-12	5-8-12	6-9-13	6-9-13	7-9-14	7-9-14	8-10-14	8-10-14	9-11-16	9-11-16	10-12-18	10-12-18

Notes:

1. Tests conducted in accordance with ANSI/ASHRAE 70-1991 at isothermal conditions..
2. Units: Neck Velocity = fpm; Total Pressure (P^t) = in. wc; Ak = $ft.^2$; Velocity Pressure = in. wc; Effective Area (Ak) = $ft.^2$.
3. NC is based upon 10dB room absorption (Re: 10^{-12} watts) evaluated at 125 through 4000 Hz octave bands.
4. Neck Area: The cross-sectional area (square feet) of the duct at the point where the diffuser is attached. All dimensions are nominal.
5. Neck velocity: Airflow rate (CFM) divided by neck area (sq. ft.) equals the neck velocity.
6. Throw: Throw values shown are measured in feet and based on isothermal air. Throw values for terminal velocities of 150, 100 and 50 fpm.
7. Throw values shown are for diffuser mounted flush to the ceiling. If diffuser is mounted on exposed duct work, the throw will be reduced by 25%.

ENGINEERING DATA

MSR, AMSR: Round Neck

Neck Velocity		300		400		500		600		700		800		900	
Total Pressure		0.041		0.064		0.092		0.125		0.163		0.206		0.308	
12x12 10	Total CFM	218		272		327		381		436		490		599	
	NC	10		16		21		25		29		32		37	
	Side	1	2	1	2	1	2	1	2	1	2	1	2	1	2
1SQ	CFM/Side	218	0	272	0	327	0	381	0	436	0	490	0	599	0
	Throw (ft.)	8-13-26		11-16-31		13-19-34		15-23-36		17-26-39		19-29-41		24-32-46	
2SQ	CFM/Side	109	109	136	136	164	164	191	191	218	218	245	245	300	300
	Throw (ft.)	5-8-17	5-8-17	7-11-22	7-11-22	8-13-24	8-13-24	10-15-26	10-15-26	11-17-28	11-17-28	13-19-30	13-19-30	16-23-33	16-23-33
2SC	CFM/Side	109	109	136	136	164	164	191	191	218	218	245	245	300	300
	Throw (ft.)	5-8-17	5-8-17	7-11-22	7-10-21	8-13-24	8-13-24	10-15-26	10-15-26	11-17-28	11-17-28	13-19-29	13-19-29	16-23-32	16-23-32
3SQ	CFM/Side	55	82	136	102	82	123	95	143	109	164	123	184	150	225
	Throw (ft.)	4-7-12	5-7-13	7-10-21	6-9-15	7-10-15	7-11-16	8-11-16	8-12-18	9-12-17	10-13-19	10-13-18	11-14-20	11-14-20	13-16-22
4SQ	CFM/Side	55	55	68	68	82	82	95	95	109	109	123	123	150	150
	Throw (ft.)	4-7-12	4-7-12	5-8-13	5-8-13	7-10-15	7-10-15	8-11-16	8-11-16	9-12-17	9-12-17	10-13-18	10-13-18	11-14-20	11-14-20

Neck Velocity		300		400		500		600		700		800		900	
Total Pressure		0.033		0.059		0.092		0.132		0.130		0.235		0.298	
12x12 12	Total CFM	235		314		392		471		549		628		706	
	NC	7		15		20		25		29		33		36	
	Side	1	2	1	2	1	2	1	2	1	2	1	2	1	2
1SQ	CFM/Side	235	0	314	0	392	0	471	0	549	0	628	0	706	0
	Throw (ft.)	7-11-23		10-15-31		13-19-31		15-23-41		18-27-44		21-31-47		25-35-50	
2SQ	CFM/Side	118	118	157	157	196	196	236	236	275	275	314	314	353	353
	Throw (ft.)	5-7-15	5-7-15	7-10-21	7-10-21	8-13-26	8-13-26	10-15-29	10-15-29	12-18-32	12-18-32	14-21-34	14-21-34	15-23-36	15-23-36
2SC	CFM/Side	118	118	157	157	196	196	236	236	275	275	314	314	353	353
	Throw (ft.)	5-7-15	5-7-15	6-10-20	6-10-20	8-13-26	8-13-26	10-15-29	10-15-29	12-18-31	12-18-31	13-20-33	13-20-33	15-23-35	15-23-35
3SQ	CFM/Side	59	88	79	118	98	147	118	177	137	206	157	236	177	265
	Throw (ft.)	4-6-12	4-6-13	5-8-14	6-9-16	7-10-16	7-11-18	8-12-18	9-13-20	9-14-19	10-15-21	11-14-21	12-16-23	12-15-22	13-17-24
4SQ	CFM/Side	59	59	79	79	98	98	118	118	137	137	157	157	177	177
	Throw (ft.)	4-6-12	4-6-12	5-8-14	5-8-14	7-10-16	7-10-16	8-12-18	8-12-18	9-14-19	9-14-19	11-14-21	11-14-21	12-15-22	12-15-22

Neck Velocity		300		400		500		600		700		800		900	
Total Pressure		0.038		0.059		0.085		0.115		0.150		0.190		0.284	
15x15 12	Total CFM	314		392		471		549		623		706		863	
	NC	11		17		22		26		29		32		37	
	Side	1	2	1	2	1	2	1	2	1	2	1	2	1	2
1SQ	CFM/Side	314	0	392	0	471	0	549	0	623	0	706	0	863	0
	Throw (ft.)	10-15-31		13-19-37		15-23-41		18-27-44		21-31-47		23-35-50		29-39-55	
2SQ	CFM/Side	157	157	196	196	236	236	275	275	314	314	353	353	452	452
	Throw (ft.)	7-10-21	7-10-21	8-13-26	8-13-26	10-15-29	10-15-29	12-18-32	12-18-32	14-21-34	14-21-34	15-23-36	15-23-36	19-28-40	19-28-40
2SC	CFM/Side	157	157	196	196	236	236	275	275	314	314	353	353	452	452
	Throw (ft.)	6-10-20	6-10-20	8-13-26	8-13-26	10-15-29	10-15-29	12-18-31	12-18-31	13-20-33	13-20-33	15-23-35	15-23-35	19-27-39	19-27-39
3SQ	CFM/Side	79	118	98	147	118	177	137	206	157	236	177	265	216	524
	Throw (ft.)	5-8-14	6-9-16	7-10-16	7-11-18	8-12-18	9-13-20	9-14-19	10-15-21	11-14-21	12-16-23	12-15-22	13-17-24	14-17-24	15-19-27
4SQ	CFM/Side	79	79	98	98	118	118	137	137	157	157	177	177	216	216
	Throw (ft.)	5-8-14	5-8-14	7-10-16	7-10-16	8-12-18	8-12-18	9-14-19	9-14-19	11-14-21	11-14-21	12-15-22	12-15-22	14-17-24	14-17-24

Neck Velocity		300		400		500		600		700		800		900	
Total Pressure		0.029		0.051		0.080		0.115		0.157		0.205		0.260	
15x15 14	Total CFM	320		427		534		641		748		855		962	
	NC	7		14		20		25		29		33		36	
	Side	1	2	1	2	1	2	1	2	1	2	1	2	1	2
1SQ	CFM/Side	320	0	427	0	534	0	641	0	748	0	855	0	962	0
	Throw (ft.)	9-13-27		12-18-37		15-23-43		18-27-47		21-32-51		24-37-55		27-41-58	
2SQ	CFM/Side	160	160	214	214	267	267	321	321	374	374	428	428	481	481
	Throw (ft.)	6-9-18	6-9-18	8-12-24	8-12-24	10-15-31	10-15-31	12-18-34	12-18-34	14-21-37	14-21-37	16-24-40	16-24-40	18-27-42	18-27-42
2SC	CFM/Side	160	160	214	214	267	267	321	321	374	374	428	428	481	481
	Throw (ft.)	6-9-18	6-9-18	8-12-24	8-12-24	10-15-31	10-15-30	12-18-34	12-18-34	14-21-36	14-21-36	16-24-39	16-24-39	18-27-41	18-27-41
3SQ	CFM/Side	80	120	107	160	134	200	160	240	187	281	214	321	241	361
	Throw (ft.)	4-7-14	5-8-16	6-9-17	7-10-19	8-12-19	9-14-21	9-14-21	10-16-23	11-16-23	12-18-25	13-17-24	14-19-27	14-18-16	16-20-29
4SQ	CFM/Side	80	80	107	107	134	134	160	160	187	187	214	214	241	241
	Throw (ft.)	4-7-14	4-7-14	6-9-17	6-9-17	8-12-19	8-12-19	9-14-21	9-14-21	11-16-23	11-16-23	13-17-24	13-17-24	14-18-16	14-18-16

Notes:

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2. Units: Neck Velocity = fpm; Total Pressure (P°) = in. wc; Ak = $ft.^2$; Velocity Pressure = in. wc; Effective Area (Ak) = $ft.^2$.
3. NC is based upon 10dB room absorption (Re: 10^{-12} watts) evaluated at 125 through 4000 Hz octave bands.
4. Neck Area: The cross-sectional area (square feet) of the duct at the point where the diffuser is attached. All dimensions are nominal.
5. Neck velocity: Airflow rate (CFM) divided by neck area (sq. ft.) equals the neck velocity.
6. Throw: Throw values shown are measured in feet and based on isothermal air. Throw values for terminal velocities of 150, 100 and 50 fpm.
7. Throw values shown are for diffuser mounted flush to the ceiling. If diffuser is mounted on exposed duct work, the throw will be reduced by 25%.

ENGINEERING DATA

MSR, AMSR: Round Neck

Neck Velocity		300		400		500		600		700		800		900	
Total Pressure		0.041		0.058		0.079		0.103		0.131		0.196		0.273	
18x18 6	Total CFM	98		117		137		156		176		215		254	
	NC	-		14		18		21		25		30		34	
	Side	1	2	1	2	1	2	1	2	1	2	1	2	1	2
1SQ	CFM/Side	98	0	117	0	137	0	156	0	176	0	215	0	254	0
	Throw (ft.)	6-9-18		7-11-20		9-15-22		10-15-23		11-17-25		20-24-34		17-21-30	
2SQ	CFM/Side	49	49	59	59	69	69	78	78	88	88	108	108	127	127
	Throw (ft.)	4-6-13	4-6-13	5-7-14	5-7-14	6-9-16	6-9-16	7-10-17	7-10-17	7-11-18	7-11-18	9-14-20	9-14-20	11-15-21	11-15-21
2SC	CFM/Side	49	49	59	59	69	69	78	78	88	88	108	108	127	127
	Throw (ft.)	4-6-13	4-6-13	5-7-14	5-7-14	6-9-16	6-9-16	7-10-17	7-10-17	7-11-18	7-11-18	9-14-20	9-14-20	11-15-21	11-15-21
3SQ	CFM/Side	25	37	30	44	35	52	39	59	44	66	54	81	64	96
	Throw (ft.)	3-5-8	3-5-9	4-6-9	4-6-10	4-7-9	5-7-10	5-7-10	6-8-11	6-7-11	6-8-12	7-8-12	7-9-13	7-9-13	8-10-14
4SQ	CFM/Side	25	25	29	29	34	34	39	39	44	44	54	54	64	64
	Throw (ft.)	3-5-8	3-5-8	4-6-9	4-6-9	4-7-9	4-7-9	5-7-10	5-7-10	6-7-11	6-7-11	7-8-12	7-8-12	7-9-13	7-9-13

Neck Velocity		300		400		500		600		700		800		900	
Total Pressure		0.041		0.059		0.080		0.104		0.132		0.197		0.275	
18x18 8	Total CFM	174		209		244		279		314		383		453	
	NC	11		16		20		24		27		32		36	
	Side	1	2	1	2	1	2	1	2	1	2	1	2	1	2
1SQ	CFM/Side	174	0	209	0	244	0	279	0	314	0	383	0	453	0
	Throw (ft.)	8-13-24		10-15-27		12-18-29		14-21-31		15-23-33		19-26-37		22-28-40	
2SQ	CFM/Side	87	87	105	105	122	122	140	140	157	157	192	192	227	227
	Throw (ft.)	5-8-17	5-8-17	7-10-19	7-10-19	8-12-24	8-12-24	9-14-22	9-14-22	10-15-24	10-15-24	12-19-26	12-19-26	15-20-29	15-20-29
2SC	CFM/Side	87	87	105	105	122	122	140	140	157	157	192	192	227	227
	Throw (ft.)	5-8-17	5-8-17	7-10-19	7-10-19	8-12-24	8-12-24	9-14-22	9-14-22	10-15-24	10-15-24	12-19-26	12-19-26	15-20-29	15-20-29
3SQ	CFM/Side	44	66	53	79	61	92	70	105	79	118	96	144	114	170
	Throw (ft.)	4-7-11	5-7-12	5-8-12	6-9-13	6-9-13	7-10-14	7-9-14	8-11-15	8-10-14	9-11-16	9-11-16	10-12-18	10-12-18	11-14-19
4SQ	CFM/Side	44	44	52	52	61	61	70	70	79	79	96	96	113	113
	Throw (ft.)	4-7-11	4-7-11	5-8-12	5-8-12	6-9-13	6-9-13	7-9-14	7-9-14	8-10-14	8-10-14	9-11-16	9-11-16	10-12-18	10-12-18

Neck Velocity		300		400		500		600		700		800		900	
Total Pressure		0.041		0.064		0.092		0.125		0.163		0.206		0.308	
18x18 10	Total CFM	218		272		327		381		436		490		599	
	NC	10		16		21		25		28		31		36	
	Side	1	2	1	2	1	2	1	2	1	2	1	2	1	2
1SQ	CFM/Side	218	0	272	0	327	0	381	0	436	0	490	0	599	0
	Throw (ft.)	8-13-24		11-16-31		13-19-34		15-23-36		17-26-39		19-29-41		24-32-46	
2SQ	CFM/Side	109	109	136	136	164	164	191	191	218	218	245	245	300	300
	Throw (ft.)	5-8-17	5-8-17	7-11-22	7-11-22	8-12-24	8-12-24	10-15-26	10-15-26	11-17-28	11-17-28	13-19-30	13-19-30	16-23-33	16-23-33
2SC	CFM/Side	109	109	279	279	349	349	419	419	489	489	558	558	628	628
	Throw (ft.)	5-8-17	5-8-17	7-11-22	7-11-22	8-12-24	8-12-24	10-15-26	10-15-26	11-17-28	11-17-28	13-19-30	13-19-30	16-23-33	16-23-33
3SQ	CFM/Side	55	82	68	102	82	123	96	143	109	164	123	184	150	225
	Throw (ft.)	4-7-11	5-7-12	5-8-12	6-9-13	7-10-15	7-11-16	8-11-16	8-12-18	9-12-17	10-13-29	10-013-18	11-14-20	11-14-20	13-16-22
4SQ	CFM/Side	55	55	68	68	82	82	95	95	109	109	123	123	150	150
	Throw (ft.)	4-7-11	4-7-11	5-8-12	5-8-12	7-10-15	7-10-15	8-11-16	8-11-16	9-12-17	9-12-17	10-013-18	10-013-18	11-14-20	11-14-20

Neck Velocity		300		400		500		600		700		800		900	
Total Pressure		0.038		0.059		0.085		0.115		0.150		0.190		0.284	
18x18 12	Total CFM	314		392		471		549		623		706		863	
	NC	10		17		22		26		29		32		37	
	Side	1	2	1	2	1	2	1	2	1	2	1	2	1	2
1SQ	CFM/Side	314	0	392	0	471	0	549	0	623	0	706	0	863	0
	Throw (ft.)	10-15-31		13-19-37		15-23-41		18-27-44		21-31-47		23-35-50		29-39-55	
2SQ	CFM/Side	157	157	196	196	236	236	275	275	312	312	353	353	432	432
	Throw (ft.)	7-10-21	7-10-21	8-13-26	8-13-26	10-15-29	10-15-29	12-18-32	12-18-32	14-21-34	14-21-34	15-23-36	15-23-36	19-28-40	19-28-40
2SC	CFM/Side	157	157	279	279	349	349	419	419	489	489	558	558	628	628
	Throw (ft.)	7-10-21	7-10-21	8-13-26	8-13-26	10-15-29	10-15-29	12-18-32	12-18-32	14-21-34	14-21-34	15-23-36	15-23-36	19-28-40	19-28-40
3SQ	CFM/Side	79	118	98	147	118	177	138	206	156	234	177	265	216	324
	Throw (ft.)	5-18-14	6-9-16	7-10-16	7-11-18	8-12-18	9-13-20	9-14-21	10-15-21	11-14-21	12-16-23	12-15-22	13-17-24	14-17-24	15-19-27
4SQ	CFM/Side	79	79	98	98	118	118	137	137	156	156	177	177	216	216
	Throw (ft.)	5-18-14	5-18-14	7-10-16	7-10-16	8-12-18	8-12-18	9-14-21	9-14-21	11-14-21	11-14-21	12-15-22	12-15-22	14-17-24	14-17-24

Notes:

1. Tests conducted in accordance with ANSI/ASHRAE 70-1991 at isothermal conditions..
2. Units: Neck Velocity = fpm; Total Pressure ($P^{\prime}$) = in. wc; Ak = $ft.^2$; Velocity Pressure = in. wc; Effective Area (Ak) = $ft.^2$.
3. NC is based upon 10dB room absorption (Re: 10^{-12} watts) evaluated at 125 through 4000 Hz octave bands.
4. Neck Area: The cross-sectional area (square feet) of the duct at the point where the diffuser is attached. All dimensions are nominal.
5. Neck velocity: Airflow rate (CFM) divided by neck area (sq. ft.) equals the neck velocity.
6. Throw: Throw values shown are measured in feet and based on isothermal air. Throw values for terminal velocities of 150, 100 and 50 fpm.
7. Throw values shown are for diffuser mounted flush to the ceiling. If diffuser is mounted on exposed duct work, the throw will be reduced by 25%.

ENGINEERING DATA

MSR, AMSR: Round Neck

Neck Velocity		300		400		500		600		700		800		900	
Total Pressure		0.036		0.056		0.080		0.109		0.142		0.130		0.269	
18x18 14	Total CFM	427		534		641		748		855		962		1175	
	NC	12		17		22		26		30		33		38	
	Side	1	2	1	2	1	2	1	2	1	2	1	2	1	2
1SQ	CFM/Side	427	0	534	0	641	0	748	0	855	0	962	0	1175	0
	Throw (ft.)	12-18-37		15-23-43		18-27-47		21-32-51		24-37-55		27-41-58		33-45-64	
2SQ	CFM/Side	214	214	267	267	321	321	374	374	428	428	481	481	588	588
	Throw (ft.)	8-12-24	8-12-24	10-15-31	10-15-31	12-18-34	12-18-34	14-27-37	14-27-37	16-24-40	16-24-40	18-27-42	18-27-42	22-33-47	22-33-47
2SC	CFM/Side	214	214	267	267	321	321	374	374	428	428	481	481	588	588
	Throw (ft.)	8-12-24	8-12-24	10-15-30	10-15-30	12-18-34	12-18-34	14-27-36	14-27-36	16-24-39	16-24-39	16-27-41	16-27-41	22-32-46	22-32-46
3SQ	CFM/Side	107	160	134	200	160	240	187	281	214	321	241	361	294	441
	Throw (ft.)	6-9-17	7-10-19	8-12-19	8-13-21	9-14-21	10-16-23	11-16-23	12-18-25	13-17-24	14-19-27	14-18-26	16-20-29	16-20-29	18-22-32
4SQ	CFM/Side	107	107	134	134	160	160	187	187	214	214	241	241	294	294
	Throw (ft.)	6-9-17	6-9-17	8-12-19	8-12-19	9-14-21	9-14-21	11-16-23	11-16-23	13-17-24	13-17-24	14-18-26	14-18-26	16-20-29	16-20-29

Neck Velocity		300		400		500		600		700		800		900	
Total Pressure		0.044		0.079		0.124		0.178		0.243		0.317		0.401	
18x18 16	Total CFM	418		558		698		837		977		1116		1256	
	NC	11		19		24		29		33		37		40	
	Side	1	2	1	2	1	2	1	2	1	2	1	2	1	2
1SQ	CFM/Side	418	0	558	0	698	0	837	0	977	0	1116	0	1256	0
	Throw (ft.)	10-15-31		14-21-42		17-26-49		21-31-54		24-37-59		28-42-63		31-47-67	
2SQ	CFM/Side	209	209	279	279	349	349	419	419	489	489	558	558	628	628
	Throw (ft.)	7-10-21	7-10-21	9-14-28	9-14-28	11-17-35	11-17-35	14-21-39	14-21-39	16-24-42	16-24-42	18-28-45	18-28-45	21-31-48	21-31-48
2SC	CFM/Side	209	209	279	279	349	349	419	419	489	489	558	558	628	628
	Throw (ft.)	6-10-20	6-10-20	9-13-27	9-13-27	11-17-34	11-17-34	13-20-38	13-20-38	16-24-42	16-24-42	18-27-44	18-27-44	20-31-47	20-31-47
3SQ	CFM/Side	105	157	140	209	175	262	209	314	244	366	279	419	314	471
	Throw (ft.)	5-8-17	6-9-18	7-11-19	8-12-22	9-14-22	10-15-24	11-17-24	12-18-27	13-18-26	14-20-29	15-19-28	16-22-31	17-21-29	18-23-33
4SQ	CFM/Side	105	105	140	140	175	175	209	209	244	244	279	279	314	314
	Throw (ft.)	5-8-17	5-8-17	7-11-19	7-11-19	9-14-22	9-14-22	11-17-24	11-17-24	13-18-26	13-18-26	15-19-28	15-19-28	17-21-29	17-21-29

Notes:

1. Tests conducted in accordance with ANSI/ASHRAE 70-1991 at isothermal conditions..
2. Units: Neck Velocity = fpm; Total Pressure (P_t) = in. wc; Ak = $ft.^2$; Velocity Pressure = in. wc; Effective Area (Ak) = $ft.^2$.
3. NC is based upon 10dB room absorption (Re: 10^{-12} watts) evaluated at 125 through 4000 Hz octave bands.
4. Neck Area: The cross-sectional area (square feet) of the duct at the point where the diffuser is attached. All dimensions are nominal.
5. Neck velocity: Airflow rate (CFM) divided by neck area (sq. ft.) equals the neck velocity.
6. Throw: Throw values shown are measured in feet and based on isothermal air. Throw values for terminal velocities of 150, 100 and 50 fpm.
7. Throw values shown are for diffuser mounted flush to the ceiling. If diffuser is mounted on exposed duct work, the throw will be reduced by 25%.

MASR, AMASR: Adjustable Round Neck

MASR, AMASR Performance Notes

Vertical adjustments are most effective with the sizes listed in the table below using the deflection pattern 4SQ (4-way square).

Apply the throw factor to the 50 fpm terminal velocity throw only.

For MASR, AMASR series diffusers (adjustable pattern controllers) apply the corrections from the table below to the MASR, AMASR data for square neck, 4-way core styles, as follows:

NC: Take listed value and add to correction
(Listed value) + (correction)

PT: Take listed value and multiply by correction
(Listed value) x (correction)

Throw: Take listed value and multiply by correction
(Listed value) x (correction)

Corrections for MASR, AMASR Series (adjustable pattern controllers)

Square Neck Size (in.)	NC (Add)		Total Pressure (P_T) (Multiply)		Vertical Throw (Multiply)			
					Cooling	Heating, ΔT		
	H	V	H	V	20°F	0°F	20°F	40°F
6x6	3	7	1.3	1.6	1.3	1.1	0.8	0.6
9x9	3	7	1.5	2.3	1.5	1.2	0.9	0.6
12x12	3	7	1.5	2.3	1.6	1.3	1.0	0.6
15x15	3	7	1.5	2.3	1.7	1.3	1.0	0.6
18x18	3	7	1.5	2.3	1.7	1.3	0.9	0.6
21x21	3	7	1.5	2.3	1.7	1.3	0.8	0.5