

## ROUND NECK • 24 X 24

Nom Neck Dia, ø	Nom Neck ft2	Neck Velocity	300	400	500	600	700	800	900
6	0.20	Velocity Press	0.01	0.01	0.02	0.02	0.03	0.04	0.05
		CFM	60	80	100	120	140	160	180
		Ps	0.01	0.01	0.02	0.02	0.03	0.04	0.05
		NC	<20	<20	<20	<20	22	26	30
		4 way throw	2   2   5	2   3   6	3   4   7	3   5   8	4   5   8	4   6   9	5   7   9
		3 way throw	2   3   6	3   4   8	3   5   9	4   6   9	4   7   10	5   8   11	6   8   12
		1 way throw	3   5   9	4   6   12	5   8   14	6   9   15	7   11   17	8   12   18	9   13   19
8	0.35	CFM	100	140	170	210	240	280	310
		Ps	0.01	0.02	0.03	0.04	0.06	0.08	0.10
		NC	<20	<20	<20	25	29	33	36
		4 way throw	2   3   5	2   4   7	3   4   9	4   5   10	4   6   11	5   7   12	5   8   12
		3 way throw	2   3   6	3   4   9	4   5   11	4   7   13	5   7   13	6   9   14	6   10   15
		2 way throw	2   4   7	3   5   10	4   6   12	5   8   14	6   9   15	7   10   17	7   11   18
		1 way throw	3   5   10	5   7   14	6   9   17	7   11   20	8   12   22	9   14   24	10   16   25
10	0.55	CFM	160	220	270	330	380	440	490
		Ps	0.01	0.02	0.03	0.04	0.05	0.07	0.09
		NC	<20	<20	<20	21	26	31	35
		4 way throw	2   3   7	3   5   9	4   6   11	5   7   13	5   8   14	6   9   15	7   10   16
		3 way throw	3   4   8	4   6   11	5   7   14	6   8   16	7   10   17	8   11   18	8   13   19
		2 way throw	3   5   10	4   7   13	5   8   16	7   10   18	8   11   19	9   13   21	10   15   22
		1 way throw	4   7   13	6   9   18	8   11   23	9   14   26	11   16   28	12   18   30	14   21   31
12	0.79	CFM	240	310	390	470	550	630	710
		Ps	0.01	0.02	0.04	0.06	0.08	0.10	0.13
		NC	<20	<20	22	27	32	36	40
		4 way throw	3   4   8	3   5   10	4   7   13	5   8   15	6   9   17	7   11   18	8   12   19
		3 way throw	3   5   10	4   6   13	5   8   16	6   10   19	8   11   20	9   13   22	10   15   23
		2 way throw	4   6   11	5   7   15	6   9   19	7   11   22	9   13   23	10   15   25	11   17   27
		1 way throw	5   8   16	7   10   21	9   13   26	11   16   31	12   19   33	14   21   35	16   24   38
14	1.07	CFM	320	430	530	640	750	860	960
		Ps	0.01	0.02	0.03	0.04	0.05	0.07	0.09
		NC	<20	<20	<20	25	31	36	40
		4 way throw	3   5   9	4   6   12	5   8   15	6   9   18	7   11   19	8   12   21	9   14   22
		3 way throw	4   6   11	5   8   15	6   9   19	8   11   22	9   13   24	10   15   25	11   17   27
		2 way throw	4   7   13	6   9   18	7   11   22	9   13   25	10   15   27	12   18   29	13   20   31
		1 way throw	6   9   19	8   12   25	10   15   31	12   19   36	15   22   39	17   25   41	19   28   44
16	1.40	CFM	420	560	700	840	980	1120	1260
		Ps	0.02	0.03	0.05	0.06	0.09	0.12	0.15
		NC	<20	<20	22	29	34	39	44
		4 way throw	4   5   11	5   7   14	6   9   18	7   11   20	8   12   22	9   14   24	11   16   25
		3 way throw	4   7   13	6   9   17	7   11   22	9   13   25	10   15   27	12   17   29	13   20   31
		2 way throw	5   8   15	7   10   20	8   13   25	10   15   29	12   18   31	13   20   33	15   23   35
		1 way throw	7   11   21	9   14   28	12   18   35	14   21   41	17   25   44	19   28   47	21   32   50

### Test Standard

- ANSI / ASHRAE standard 70
- Isothermal air used during testing.

### Sound Levels

- NC is noise criteria curve that will not be exceeded at the operating point. This is determined by assuming a 10dB (ref: 10<sup>-12</sup> watts) room attenuation that is subtracted from the power levels in each of the 2nd thru 7th octave bands

### Throw

- The numbers shown are throw distances, in feet, measured along the jet trajectory axis relating to terminal velocities of 150, 100, & 50 fpm, with the jet attached to the ceiling surface.
- 3-way throw distance is based on 2 cores in the same direction. 2-way throw distance is based on 3 cores in the same direction.

### Pressure

- P<sub>s</sub> represents Static Pressure, inches of water
- Velocity Pressure, inches of water, is calculated (@ standard conditions) as:  
 $P_v = (\text{Velocity, fpm} / 4005)^2$
- Total pressure may be calculated by adding the Velocity pressure and Static pressure:  $P_t = P_v + P_s$

### Neck Velocity

- Feet per minute (fpm), measured in the supply duct

SQUARE NECK • 24 X 24

Nom Neck Size		Neck Area, ft2	Neck Velocity	300		400		500		600		700		800		900									
W	H			Velocity Press		CFM		Ps		NC		4 way throw		3 way throw		2 way throw		1 way throw							
6	6	0.25	Velocity Press		0.01		0.01		0.02		0.02		0.03		0.04		0.05								
			CFM		80		100		130		150		180		200		230								
			Ps		0.02		0.03		0.05		0.06		0.09		0.11		0.15								
			NC		<20		<20		22		25		30		33		36								
			4 way throw		2	2	5	2	3	6	3	4	8	3	5	9	4	5	9	4	6	10	5	7	11
			3 way throw		2	3	6	2	4	7	3	5	10	4	6	11	4	7	12	5	7	12	6	8	13
			2 way throw		2	3	7	3	4	8	4	6	11	4	6	12	5	8	13	6	8	14	7	10	15
1 way throw		3	5	10	4	6	12	5	8	16	6	9	17	7	11	19	8	12	20	9	14	21			
8	8	0.44	CFM		130		180		220		270		310		360		400								
			Ps		0.01		0.02		0.03		0.04		0.06		0.08		0.09								
			NC		<20		<20		21		26		29		33		36								
			4 way throw		2	3	6	3	4	8	3	5	10	4	6	12	5	7	12	5	8	13	6	9	14
			3 way throw		2	4	7	3	5	10	4	6	12	5	7	14	6	9	15	7	10	16	7	11	17
			2 way throw		3	4	8	4	6	12	5	7	14	6	9	16	7	10	18	8	12	19	9	13	20
			1 way throw		4	6	12	5	8	16	7	10	20	8	12	23	9	14	25	11	16	27	12	18	28
10	10	0.69	CFM		210		280		350		420		490		560		630								
			Ps		0.02		0.04		0.06		0.09		0.13		0.16		0.21								
			NC		<20		<20		21		26		31		35		38								
			4 way throw		3	4	8	3	5	10	4	6	13	5	8	14	6	9	16	7	10	17	8	11	18
			3 way throw		3	5	9	4	6	12	5	8	15	6	9	18	7	11	19	8	12	20	9	14	22
			2 way throw		4	5	11	5	7	14	6	9	18	7	11	20	8	13	22	10	14	24	11	16	25
			1 way throw		5	8	15	7	10	20	8	13	25	10	15	29	12	18	31	13	20	33	15	23	35
12	12	1.00	CFM		300		400		500		600		700		800		900								
			Ps		0.02		0.04		0.06		0.09		0.12		0.16		0.20								
			NC		<20		<20		23		29		34		38		42								
			4 way throw		3	5	9	4	6	12	5	8	15	6	9	17	7	11	19	8	12	20	9	14	21
			3 way throw		4	6	11	5	7	15	6	9	18	7	11	21	9	13	23	10	15	24	11	17	26
			2 way throw		4	6	13	6	8	17	7	11	21	8	13	24	10	15	26	11	17	28	13	19	30
			1 way throw		6	9	18	8	12	24	10	15	30	12	18	35	14	21	37	16	24	40	18	27	42
14	14	1.36	CFM		410		540		680		820		950		1090		1230								
			Ps		0.02		0.03		0.05		0.07		0.10		0.13		0.16								
			NC		<20		<20		24		30		35		39		43								
			4 way throw		4	5	11	5	7	14	6	9	17	7	11	20	8	12	22	9	14	23	11	16	25
			3 way throw		4	6	13	6	9	17	7	11	21	9	13	25	10	15	27	11	17	29	13	19	30
			2 way throw		5	7	15	7	10	20	8	12	25	10	15	29	12	17	31	13	20	33	15	22	35
			1 way throw		7	11	21	9	14	28	12	17	35	14	21	40	16	24	44	19	28	47	21	32	50
16	16	1.78	CFM		530		710		890		1070		1240		1420		1600								
			Ps		0.02		0.03		0.04		0.06		0.09		0.11		0.15								
			NC		<20		<20		25		31		36		40		44								
			4 way throw		4	6	12	5	8	16	7	10	20	8	12	23	9	14	25	11	16	27	12	18	28
			3 way throw		5	7	15	7	10	20	8	12	25	10	15	28	11	17	30	13	20	33	15	22	35
			2 way throw		6	8	17	8	11	23	9	14	28	11	17	33	13	20	35	15	23	38	17	25	40
			1 way throw		8	12	24	11	16	32	13	20	40	16	24	46	19	28	50	21	32	53	24	36	57

Test Standard

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Sound Levels

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Throw

- The numbers shown are throw distances, in feet, measured along the jet trajectory axis relating to terminal velocities of 150, 100, & 50 fpm, with the jet attached to the ceiling surface.
- 3-way throw distance is based on 2 cores in the same direction. 2-way throw distance is based on 3 cores in the same direction.

Pressure

- P<sub>s</sub> represents Static Pressure, inches of water
- Velocity Pressure, inches of water, is calculated (@ standard conditions) as:  
P<sub>v</sub> = (Velocity, fpm / 4005)<sup>2</sup>
- Total pressure may be calculated by adding the Velocity pressure and Static pressure: P<sub>t</sub> = P<sub>v</sub> + P<sub>s</sub>

Neck Velocity

- Feet per minute (fpm), measured in the supply duct

**12 X 12 • ROUND & SQUARE NECKS**

Nom Neck Size	Neck Velocity	300	400	500	600	700	800	900	1000		
	Velocity Press	.01	.01	.02	.02	.03	.04	.05	.06		
ROUND NECK SIZES	05	CFM	40	50	70	80	100	110	120	140	
		P <sub>s</sub>	.01	.01	.02	.03	.05	.06	.07	.10	
		NC	<20	<20	22	25	30	32	34	38	
		4 way throw	1 2 4	2 3 5	3 4 6	3 4 7	4 5 8	4 5 9	5 6 10	5 6 11	6 7 12
		3 way throw	2 3 5	2 3 6	3 4 7	4 5 8	4 5 9	5 6 10	6 7 11	7 8 12	8 9 13
		2 way throw	2 3 6	3 4 7	4 5 8	5 6 9	6 7 10	7 8 11	8 9 12	9 10 13	10 11 14
		1 way throw	3 4 9	4 5 11	5 6 12	6 7 13	7 8 14	8 9 15	9 10 16	10 11 17	11 12 18
	06	CFM	60	80	100	120	140	160	180	200	
		P <sub>s</sub>	.01	.02	.03	.04	.06	.08	.10	.12	
		NC	<20	<20	22	27	30	33	36	38	
		4 way throw	2 3 5	2 4 7	3 5 7	4 5 8	5 6 9	6 7 10	7 8 11	8 9 12	9 10 13
		3 way throw	2 3 7	3 4 8	4 5 9	5 6 10	6 7 11	7 8 12	8 9 13	9 10 14	10 11 15
		2 way throw	3 4 8	3 5 9	4 6 10	5 7 11	6 8 12	7 9 13	8 10 14	9 11 15	10 12 16
		1 way throw	4 5 11	5 7 13	6 9 15	7 11 16	8 12 17	9 13 18	10 14 19	11 15 20	12 16 21
	07	CFM	80	110	130	160	190	210	240	270	
		P <sub>s</sub>	.01	.03	.04	.05	.08	.09	.12	.15	
		NC	<20	21	25	30	34	36	39	42	
		4 way throw	2 3 5	2 4 7	3 4 8	4 5 9	5 6 10	6 7 11	7 8 12	8 9 13	9 10 14
		3 way throw	2 3 7	3 5 9	4 6 10	5 7 11	6 8 12	7 9 13	8 10 14	9 11 15	10 12 16
		2 way throw	3 4 8	3 5 10	4 6 12	5 7 13	6 8 14	7 9 15	8 10 16	9 11 17	10 12 18
		1 way throw	4 5 11	5 7 15	6 9 17	7 11 19	8 13 20	9 14 21	10 15 22	11 16 23	12 17 24
	08	CFM	100	140	170	210	240	280	310	350	
		P <sub>s</sub>	.02	.03	.04	.07	.09	.12	.15	.19	
		NC	<20	23	28	33	36	39	42	44	
4 way throw		2 3 6	3 4 8	3 5 10	4 6 11	5 7 12	6 8 13	7 9 14	8 10 15	9 11 16	
3 way throw		2 4 7	3 5 10	4 6 12	5 8 13	6 9 14	7 10 15	8 11 16	9 12 17	10 13 18	
2 way throw		3 4 8	4 6 12	5 7 14	6 9 15	7 10 16	8 11 17	9 12 18	10 13 19	11 14 20	
1 way throw		4 6 12	6 8 17	7 10 19	8 12 22	9 14 23	10 15 24	11 16 25	12 17 26	13 18 27	
SQUARE NECK SIZES	06 x 06	CFM	80	100	130	150	180	200	230	250	
		P <sub>s</sub>	.03	.04	.07	.09	.13	.16	.21	.25	
		NC	<20	<20	25	28	33	35	38	40	
		4 way throw	2 3 6	2 4 7	3 5 8	4 5 9	5 6 10	6 7 11	7 8 12	8 9 13	9 10 14
		3 way throw	2 3 7	3 4 9	4 6 10	5 7 11	6 8 12	7 9 13	8 10 14	9 11 15	10 12 16
	08 x 08	CFM	130	180	220	260	310	350	400	440	
		P <sub>s</sub>	.02	.04	.06	.08	.12	.15	.20	.24	
		NC	<20	21	26	30	34	37	40	42	
		4 way throw	2 3 7	3 5 9	4 6 11	5 7 12	6 8 13	7 9 14	8 10 15	9 11 16	10 12 17
		3 way throw	3 4 8	4 6 12	5 7 13	6 8 14	7 9 15	8 10 16	9 11 17	10 12 18	11 13 19
		2 way throw	3 5 10	4 7 13	5 8 16	6 10 17	7 11 18	8 12 19	9 13 20	10 14 21	11 15 22
		1 way throw	5 7 14	6 9 19	8 12 22	9 14 24	11 16 26	12 18 28	14 21 30	15 22 31	16 23 32

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- Feet per minute (fpm), measured in the supply duct