

PERFORMANCE DATA:

MODEL 6400 • SQUARE NECK

NOMINAL NECK SIZE	BLOW PATTERNS	NECK VEL. VP TP	300		400		500		600		700		800		900	
			.006 .029		.010 .051		.016 .080		.022 .116		.031 .157		.040 .205		.050 .260	
6 x 6 .25 SQ. FT.	RETURN FACTORS	—SP=1.1 TP NC + 1	CFM NC	75 —	100 10	125 17	150 22	175 26	200 31	225 35	A	B	A	B	A	B
	4A		CFM/SIDE THROW, FT.	19 4-5-8	25 5-6-9	31 6-8-10	37 6-8-11	44 8-9-12	50 8-9-12	56 9-10-13						
	3A		CFM/SIDE THROW, FT.	19 28 4-5-8 5-8-11	25 38 5-6-9 6-9-12	31 47 6-8-10 8-10-14	37 56 6-8-11 8-11-15	44 66 8-9-12 9-12-16	50 75 8-9-12 9-12-17	56 85 9-10-13 10-13-18						
	2S 2G		CFM/SIDE THROW, FT.	37 8-9-12	50 9-10-14	62 10-11-16	75 11-12-17	88 12-13-18	100 12-14-19	113 13-15-22						
	1S		CFM/SIDE THROW, FT.	75 9-11-15	100 10-12-17	125 11-14-19	150 12-15-22	175 13-16-22	200 14-17-24	225 15-18-25						
9 x 9 .56 SQ. FT.	RETURN FACTORS	—SP=1.2 TP NC + 2	CFM NC	170 —	225 14	280 20	340 26	395 31	450 35	505 38	A	B	A	B	A	B
	4A		CFM/SIDE THROW, FT.	42 5-6-10	56 6-8-11	70 8-9-12	84 8-10-13	98 9-10-14	112 9-11-15	126 10-12-16						
	3A		CFM/SIDE THROW, FT.	42 63 5-6-10 8-10-13	56 85 6-8-11 9-11-15	70 106 8-9-12 10-12-17	84 127 8-10-13 11-13-18	98 148 9-10-14 12-14-19	112 169 9-11-15 12-15-22	126 190 10-12-16 13-16-22						
	2S 2G		CFM/SIDE THROW, FT.	84 9-10-15	112 11-13-18	141 12-15-20	169 13-16-22	197 14-17-23	225 15-18-25	253 16-19-28						
	1S		CFM/SIDE THROW, FT.	169 12-15-20	225 14-17-23	282 16-19-26	338 17-22-29	394 18-22-31	450 19-24-33	507 22-25-35						
12 x 12 1.0 SQ. FT.	RETURN FACTORS	—SP=1.3 TP NC + 4	CFM NC	300 10	400 17	500 23	600 28	700 33	800 36	900 39	A	B	A	B	A	B
	4A		CFM/SIDE THROW, FT.	75 6-9-11	100 8-10-13	125 9-11-15	150 10-12-16	175 10-13-17	200 11-14-18	225 12-15-19						
	3A		CFM/SIDE THROW, FT.	75 112 6-9-11 9-11-15	100 150 8-10-13 10-12-17	125 187 9-11-15 11-14-19	150 225 10-12-16 12-15-22	175 262 10-13-17 13-16-22	200 300 11-14-18 14-17-24	225 338 12-15-19 15-18-25						
	2S 2G		CFM/SIDE THROW, FT.	150 11-13-18	200 13-15-22	250 15-17-24	300 16-18-26	350 17-19-28	400 18-22-30	450 19-22-32						
	1S		CFM/SIDE THROW, FT.	300 14-17-24	400 16-19-28	500 18-22-32	600 19-23-34	700 22-25-36	800 23-27-38	900 24-29-41						
15 x 15 1.56 SQ. FT.	RETURN FACTORS	—SP=1.8 TP NC + 4	CFM NC	465 10	625 19	780 25	935 30	1090 33	1250 38	1400 41	A	B	A	B	A	B
	4A		CFM/SIDE THROW, FT.	117 8-10-13	156 9-11-15	195 10-12-17	234 11-13-18	273 12-14-19	312 12-15-22	350 13-16-24						
	3A		CFM/SIDE THROW, FT.	117 175 8-10-13 11-13-18	156 234 9-11-15 13-15-22	195 292 10-12-17 15-17-24	234 351 11-13-18 16-18-26	273 409 12-14-19 17-19-28	312 468 12-15-22 18-22-30	350 527 13-16-24 19-22-32						
	2S 2G		CFM/SIDE THROW, FT.	234 13-16-22	312 15-18-25	390 17-20-29	468 18-22-32	546 19-23-34	625 22-25-36	700 22-28-38						
	1S		CFM/SIDE THROW, FT.	467 16-19-28	625 18-22-32	780 20-25-36	935 22-28-39	1090 23-30-42	1250 25-32-44	1400 28-34-47						
18 x 18 2.25 SQ. FT.	RETURN FACTORS	—SP=2.1 TP NC + 6	CFM NC	675 12	900 21	1125 27	1350 31	1575 36	1800 39	2025 42	A	B	A	B	A	B
	4A		CFM/SIDE THROW, FT.	168 9-11-15	225 10-12-17	281 11-14-19	337 12-15-21	394 13-16-22	450 14-17-24	506 15-18-25						
	3A		CFM/SIDE THROW, FT.	168 253 9-11-15 12-15-20	225 338 10-12-17 14-17-23	281 422 11-14-19 16-19-26	337 506 12-15-21 17-22-29	394 590 13-16-22 18-22-31	450 675 14-17-24 19-24-33	506 760 15-18-25 22-25-35						
	2S 2G		CFM/SIDE THROW, FT.	337 14-17-24	450 16-19-28	562 18-22-32	675 19-23-34	787 22-25-36	900 22-26-39	1012 24-29-41						
	1S		CFM/SIDE THROW, FT.	675 17-22-30	900 20-24-34	1125 23-28-39	1350 24-30-41	1575 26-32-44	1800 29-35-47	2025 31-37-50						

For performance notes, see page D63.

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CEILING DIFFUSERS

PERFORMANCE DATA:

MODEL 6400 • SQUARE NECK

NOMINAL NECK SIZE	BLOW PATTERNS	NECK VEL. VP TP	300		400		500		600		700		800		900				
			.006 .029		.010 .051		.016 .080		.022 .116		.031 .157		.040 .205		.050 .260				
21 x 21 3.06 SQ. FT.	RETURN FACTORS	—SP=2.6 TP NC + 8	CFM NC		915 14		1225 22		1530 28		1835 32		2140 37		2750 43				
			A	B	A	B	A	B	A	B	A	B	A	B	A	B			
	4A	CFM/SIDE THROW, FT.	230	306	382	460	535	612	688										
	3A	CFM/SIDE THROW, FT.	230 345	306 460	382 573	460 688	535 802	612 918	688 1030										
24 x 24 4.0 SQ. FT.	RETURN FACTORS	—SP=2.7 TP NC + 8	CFM NC		1200 15		1600 23		2000 29		2400 33		2800 37		3200 41		3600 44		
			A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	
	4A	CFM/SIDE THROW, FT.	300	400	500	600	700	800	900										
	3A	CFM/SIDE THROW, FT.	300 450	400 600	500 750	600 900	700 1050	800 1200	900 1350										
30 x 30 6.25 SQ. FT.	RETURN FACTORS	—SP=3.1 TP NC + 8	CFM NC		1875 16		2500 24		3125 30		3750 35		4375 39		5000 42		5625 46		
			A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	
	4A	CFM/SIDE THROW, FT.	469	625	782	937	1093	1250	1406										
	3A	CFM/SIDE THROW, FT.	469 703	625 938	782 1172	937 1405	1093 1640	1250 1875	1406 2110										
36 x 36 9.0 SQ. FT.	RETURN FACTORS	—SP=3.6 TP NC + 9	CFM NC		2700 18		3600 25		4500 31		5400 36		6300 40		7200 44		8100 48		
			A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	
	4A	CFM/SIDE THROW, FT.	675	900	1125	1350	1575	1800	2025										
	3A	CFM/SIDE THROW, FT.	675 1010	900 1350	1125 1687	1350 2025	1575 2362	1800 2700	2025 3038										

For performance notes, see page D63.

PERFORMANCE DATA:

MODEL 6400 • RECTANGULAR NECK

NOMINAL NECK SIZE	BLOW PATTERNS	NECK VEL. VP TP	300 .006 .029		400 .010 .051		500 .016 .080		600 .022 .116		700 .031 .157		800 .040 .205		900 .050 .260	
			CFM NC		A	B	A	B	A	B	A	B	A	B	A	B
36 x 24 6.0 SQ. FT.	RETURN FACTORS —SP=3.4 TP NC + 8	CFM NC	1800 18		2400 25		3000 31		3600 36		4200 40		4800 43		5400 46	
	4B 4C	CFM/SIDE THROW, FT.	600 17-22-30	300 11-13-18	800 20-24-34	400 13-15-22	1000 23-28-39	500 15-17-24	1200 24-30-41	600 16-18-26	1400 26-32-44	700 17-19-28	1600 29-35-47	800 18-22-30	1800 31-37-50	900 19-22-32
	4E	CFM/SIDE THROW, FT.	450 15-18-25	450 15-18-25	600 17-22-30	600 17-22-30	750 19-24-34	750 19-24-34	900 22-26-36	900 22-26-36	1050 22-28-39	1050 22-28-39	1200 24-30-42	1200 24-30-42	1350 25-32-41	1350 25-32-44
	3A1	CFM/SIDE THROW, FT.	750 18-22-32	300 11-13-18	1000 22-25-36	400 13-15-22	1250 24-29-41	500 15-17-24	1500 26-32-44	600 16-18-26	1750 28-34-47	700 17-19-28	2000 30-36-50	800 18-22-30	2250 32-38-53	900 19-22-32
	3A2	CFM/SIDE THROW, FT.	676 16-19-28	562 14-17-24	900 18-22-32	750 16-19-28	1125 20-25-36	937 18-22-32	1350 22-28-39	1125 19-23-34	1575 23-30-42	1312 22-25-36	1800 25-32-44	1500 22-26-39	2025 28-34-47	1687 24-29-41
	2A	CFM/SIDE THROW, FT.	900 19-24-33		1200 22-28-38		1500 25-32-43		1800 28-34-46		2100 30-36-50		2400 32-39-53		2700 34-41-57	
	2C 2D	CFM/SIDE THROW, FT.	1200 22-25-37	600 15-18-25	1600 24-30-42	800 17-22-30	2000 28-34-48	1000 19-24-34	2400 30-36-51	1200 22-26-36	2800 32-39-56	1400 22-28-39	3200 34-42-58	1600 24-30-42	3600 37-44-63	1800 25-32-44
	2E	CFM/SIDE THROW, FT.	1800 24-30-41		2400 28-34-47		3000 32-39-53		3600 34-41-58		4200 36-44-62		4800 39-47-67		5400 41-50-72	
	1A	CFM/SIDE THROW, FT.	1800 24-30-41		2400 28-34-47		3000 32-39-53		3600 34-41-58		4200 36-44-62		4800 39-47-67		5400 41-50-72	
	1B	CFM/SIDE THROW, FT.	1800 24-30-41		2400 28-34-47		3000 32-39-53		3600 34-41-58		4200 36-44-62		4800 39-47-67		5400 41-50-72	
36 x 30 7.5 SQ. FT.	RETURN FACTORS —SP=3.4 TP NC + 8	CFM NC	2250 19		3000 26		3750 32		4500 37		5250 41		6000 44		6750 47	
	4B 4C	CFM/SIDE THROW, FT.	657 17-22-30	468 12-15-20	875 20-24-34	625 14-17-23	1093 23-28-39	782 16-19-26	1313 24-30-41	937 17-22-29	1532 26-32-44	1093 18-22-31	1750 29-35-47	1250 19-24-33	1969 31-37-50	1406 22-25-35
	3A1	CFM/SIDE THROW, FT.	890 19-24-33	468 12-15-20	1187 22-28-38	625 14-17-23	1484 25-32-43	782 16-19-26	1781 28-34-46	937 17-22-29	2078 30-36-50	1093 18-22-31	2375 32-39-53	1250 19-24-33	2672 34-41-57	1406 22-25-35
	3A2	CFM/SIDE THROW, FT.	787 18-22-32	675 13-16-22	1050 22-25-36	900 15-18-25	1312 24-29-41	1125 17-20-29	1575 26-32-44	1350 18-22-32	1837 28-34-47	1575 19-23-34	2100 30-36-50	1800 22-25-36	2362 32-38-53	2025 22-28-38
	2A	CFM/SIDE THROW, FT.	1125 20-25-35		1500 23-29-40		1875 26-33-45		2250 29-35-49		2625 31-38-52		3000 33-40-57		3375 35-43-60	
	2C 2D	CFM/SIDE THROW, FT.	1312 22-25-37	938 17-22-30	1750 24-30-42	1250 20-24-34	2188 28-34-48	1562 23-28-39	2625 30-36-51	1875 24-30-41	3063 32-39-56	2187 26-32-44	3500 34-42-58	2500 29-35-47	3938 37-44-63	2812 31-37-50
	2E	CFM/SIDE THROW, FT.	2250 24-30-41		3000 28-34-47		3750 32-39-53		4500 34-41-58		5250 36-44-62		6000 39-47-67		6750 41-50-72	
	1A	CFM/SIDE THROW, FT.	2250 24-30-41		3000 28-34-47		3750 32-39-53		4500 34-41-58		5250 36-44-62		6000 39-47-67		6750 41-50-72	
	1B	CFM/SIDE THROW, FT.	2250 24-30-41		3000 28-34-47		3750 32-39-53		4500 34-41-58		5250 36-44-62		6000 39-47-67		6750 41-50-72	

Notes:

1. Core style 4E is sized to give equal flow as near as possible in directions A and B.
2. For core styles 1A, 1B, 2A and 2B, the "A" direction is shown. Throw correction factor for "B" direction is: $A \times .82 = B$.

- CFM** - cubic feet per minute
VP - velocity pressure - inches w.g.
TP - total pressure - inches w.g.
T - throw in feet
NC - Noise Criteria (values) based on 10 dB room absorption, re 10^{-12} watts.
Neck Velocity - feet per minute

Performance Notes:

1. Throw values are given for terminal velocities of 150, 100 and 50 fpm under isothermal conditions. Data applies to ceiling mounted units when the maximum coanda effect applies. When no ceiling is present (exposed duct), throws are reduced by approximately 30% with a downward projection of approximately 30 degrees.
2. Performance data as tabulated is for supply air conditions. Correction factors for return air application - see next page.
3. Correction factors for round inlets - see next page.
4. Data derived from tests conducted in accordance with ANSI/ASHRAE Standard 70 – 2006.

PERFORMANCE DATA CORRECTIONS:

MODEL 6400

CORRECTION FACTORS WITH SQUARE TO ROUND INLET ADAPTOR – TABLE 2

- Add the NC correction factor from Table 2 and the NC value listed in the performance tables.
- Multiply the correction factor from Table 2 by the listed total pressure in the performance tables.
- Multiply the correction factor from Table 2 by the listed throws in the performance tables.

Example:

12" x 12" unit with 10" round adaptor handling 500 cfm supply air. (Page D50).

- $NC = 23 + 7 = 30$
- Total Pressure = $.08 \times 1.65 = 0.132$
- Throw = $15 \times 1.15 = 17.25$ feet @ 50 fpm terminal velocity.

TABLE 2 Correction Factors for SR Adaptors

SQUARE INLET	ROUND INLET	NC (add)	TP (multiply)	THROW (multiply)		
				150	100	50
6 x 6	5	7	1.65	1.10	1.10	1.15
9 x 9	6	17	3.50	1.15	1.15	1.20
9 x 9	8	4	1.40	1.10	1.10	1.10
12 x 12	8	17	3.50	1.15	1.15	1.20
12 x 12	10	7	1.65	1.10	1.10	1.15
15 x 15	10	17	3.50	1.15	1.15	1.20
15 x 15	12	9	1.90	1.10	1.10	1.15
15 x 15	14	3	1.25	1.05	1.05	1.10
18 x 18	12	17	3.50	1.15	1.15	1.20
18 x 18	14	10	2.00	1.10	1.10	1.15
18 x 18	16	5	1.45	1.10	1.10	1.10
21 x 21	14	17	3.70	1.15	1.15	1.20
21 x 21	16	11	2.25	1.10	1.10	1.15
21 x 21	18	6	1.60	1.10	1.10	1.10
21 x 21	20	3	1.20	1.05	1.05	1.10
24 x 24	16	17	3.50	1.15	1.15	1.20
24 x 24	18	12	2.35	1.10	1.10	1.15
24 x 24	20	7	1.65	1.10	1.10	1.15

CORRECTION FACTORS FOR RETURN INLET

If the unit is used as a return inlet, the performance data is obtained by applying the return corrections, as follows:

- Add the NC correction at the left side of the table to the NC value listed in the performance table.
- Multiply the SP factor at the left side of the table by the total pressure (TP) listed at the top of the table.

Example:

12" x 12" unit handling 600 cfm of return air. (Page D50).

- Return NC = $28 + 4 = 32$.
- Return negative SP = $1.3 \times (-.116) = -.151$.

RECOMMENDED MAXIMUM AIRFLOW – TABLE 3

Diffuser mounting height and air temperature differential (ΔT) are both to be considered when selecting diffusers. As air travels from a diffuser, room air is entrained into the supply air stream and the delivery pattern thickens.

If the volume or throw requirement is too great, the lower part of the supply air stream can intrude into the occupied zone causing objectionable drafts. Consult Table 3 to verify selection.

TABLE 3 Maximum Recommended Airflow

CEILING HEIGHT (ft.)	MAX. AIRFLOW PER DIFFUSER (CFM)				MAX. REC. COOLING TEMP. DIFFERENTIAL ΔT
	4-way	3-way	2-way (2A, 2B)	1-way & 2S	
7	400	300	200	100	15°F
8	600	450	300	150	20°F
9	1200	900	600	300	25°F
10	1800	1350	900	450	25°F
12	3200	2400	1600	800	30°F
14	4800	3600	2400	1200	30°F
16	6000	4500	3000	1500	30°F