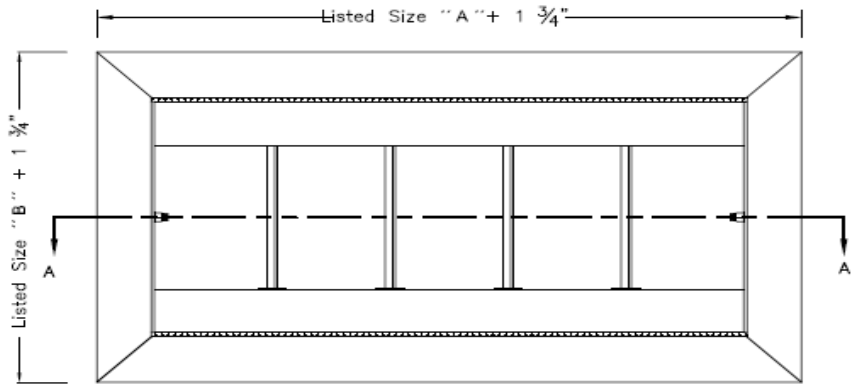
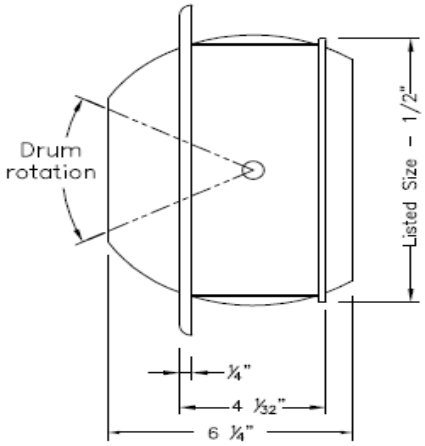
laminaire® L-RL

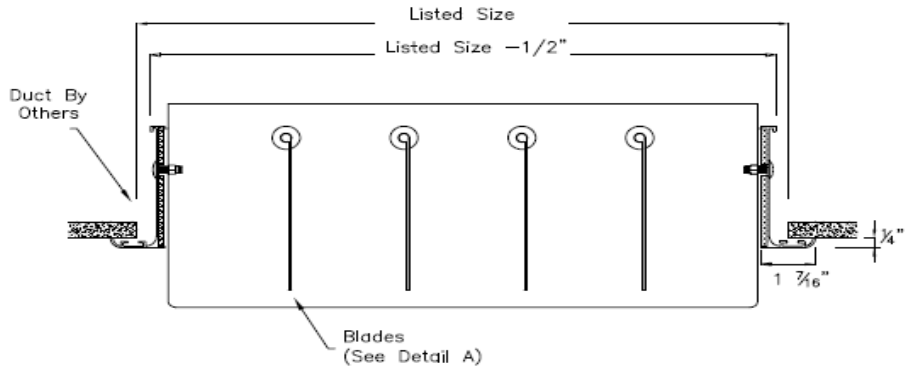
Evolución sostenible

MODEL L - RL FEATURES

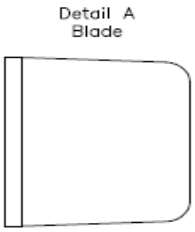
SUPPLY GRILLE







Section A-A



Finish
White (Standard)
Other colors (Optional)

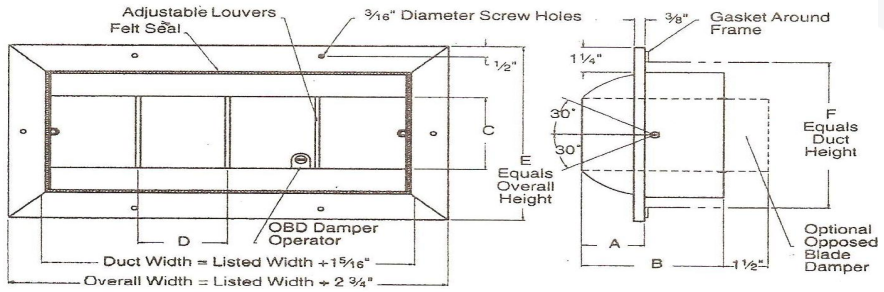
Note 1 : Listed Size "B" 9,10,12,15
Note 2 : Available in sizes 9x6 to 36x15

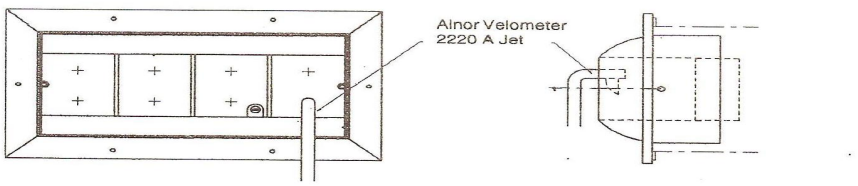
MODEL L-RL ROTO-LOUVER

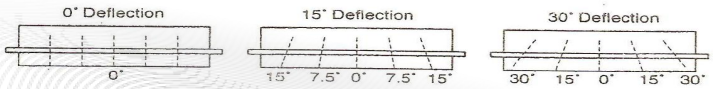
MODEL L-RL ROTO LOUVER HIGH CAPACITY SUPPLY OUTLETS

Height		6"		10"		12"	
Listed Sizes Width and Height in Inches		**W x H**	**Nº of Louvers**	**W x H**	**Nº of Louvers**	**W x H**	**Nº of Louvers**
		9 x 6	2	20 x 10	3	20 x 15	3
		12 x 6	3	25 x 10	4	25 x 15	4
		18 x 6	5	30 x 10	5	30 x 15	5
		24 x 6	7	35 x 10	6	35 x 15	6
		30 x 6	9	40 x 10	7	40 x 15	7
		36 x 6	11	50 x 10	9	50 x 15	9
		48 x 6	15	60 x 10	11	60 x 15	11
		60 x 6	19	70 x 10	13	70 x 15	13
Dimensions	A	1 ¾		2 ⅜		3	
	B	4 ⅜		6 ⅛		6 ⅛	
	C	3 ½		5 ⅞		6 ¼	
	D	3		5		5	
	E	8 ½		12 ¼		13 ⅜	
	F	7		10 13/16		12 ½	

ALL DIMENSIONS IN INCHES







MODEL L-RL ROTO-LOUVER

Desing Considerations:

An inherent feature of the model L-RL Roto Louver adjustable, high capacity supply air outlet is enchanced directional control. This is accomplished by rotaing the rectangular cylindrical supply air outlet upward or downward when horizontally mounted, or from side-to-side when vertically mounted. This simple rotary adjustement is easier and less time consuming than adjusting front and rear air deflectors in a fixed mounted supply air grille, and provides directional control of airstream beyond the capabilities of these fixed supply outlets. The model L-RL Roto - Louver also incorporates adjustable louvers that provide spread control at various angles from 0º to 60º regardless of the angle setting of the Roto - Louver drum.

Test conditions, Performance variables and definitions

The performance data for this model adjustable high capacity supply outlets are presented in tubular arrangement for convenience of size selection. A duct opening area factor in sq. ft. is given for each of the 32 listed sizes. This factor permits simple calculation of duct opening velocities in FPM by dividing the primary air volume in CFMby the duct opening area factor in sq. ft. The follow-ing values are listed horizontally for each size in the tabulated performance data.

• **Outlet velocities (VK)** are the average velocities of FPM of rated flow of primary air volume, measured at a minimum of two points on the face of the rectangular cylindrical supply outlet between the adjustable louvers.

• **Outlet Areas (Ak)** are empirical factors in sq. Ft. Determinated by dividing the rated flow of primary air volume by the outlet velocity (Vk) in FPM.

• **CFM** is the volume of primary air volume by the outlet velocity (Vk) in FPM. CFM is the volume of primary air determined by multiplying the outlet area factor (Ak) in sq. ft. by the outlet velocity factor (Vk) in FPM.

CFM=Ak in sq. ft. x Vk in FPM

• **Throws (T)** are the distances the supply airstream travels along a centerline perpendicular to the face of the rectangular cylindrical outlet before the maximun velocities are reduced to 150 FPM. The throw values are based on model L-RL Roto - Louver supply outlets stalled without the aid of a ceiling and supplying primary air at 20º F below room temperature.

• **NC Values** in the performance tables are bades on a room absorptionof 10 dB re 10-12 watts with a single model and air pattern louvers set at 0º for straight flow. In exceptionaily large occupied such as sports arenas and exhibition halls, when Model L-RL are installated a minimun of 10 feet above the occupied zone, NC values can be reduced by 6 dB, for a distance of 15 feet by 10 dB, and for a distance of 20 feet by 12 dB.

• **Total Pressure (Pt)** is the sum of the static pressure (Ps) and the velocity pressure (Pv) requiered behind the model L-RL supply outlet measured in inches of water, (Pt = Ps + Pv). To obtain velocity pressure (Pv). the velocity at the duct opening must first be determianted by dividing the duct opening area into any selected CFM.

Vfpm = (CFM / Duct opening area)

The velocity pressure is then calculated as follows where the number 4005 is constant:

$Pv=(Vfpm/4005)^2$

To obtain the static pressure (Ps), substract the calculated velocity pressure (Pv) from the total pressure (Pt), (Pt) found it in the performance tables: **Ps=Pt-Pv.**

• **Damper Throttling** at the model L-RL should be used only for fine balancing. Gross balancing of the system should be provided in the supply system ductwork. When dampers are moved into the throttling mode, the total pressure (Pt) and NC valules of model L-RL are modified according to the factors shown in the table below. OBDE volume dampers are not recommended as an integral part of model L-RL supply outlets having static pressure drops greater than 0,25" of water.

Damper Throttling correcion Factors

% Register Damper Opening	Add to listed NC	Factor Times Listed Pt
100%	0 dB	1.0
82%	4 dB	1.5
70%	8 dB	2.0
50%	16 dB	4.0

MODEL L-RL ROTO-LOUVER PERFORMANCE DATA

CFM	LISTED SIZES (INCHES)	9 x 6			12 x 6			18 x 6			24 x 6		
	DUTCH OPENING AREA (SQ.FT.)	0.50			0,65			0,94			1,23		
	DEFLECTION	0º	15º	30º	0º	15º	30º	0º	15º	30º	0º	15º	30º
	Ak OUTLET AREA (SQ.FT.)	.17	.16	.13	.23	.21	.18	.35	.32	.26	.47	.41	.35
100	OUTLET VELOCITY (FPM)	590	625	770									
	THROW IN FEET @ vt=150 FPM	8	7	6									
	Pt INCHES W.G.	.021	.024	.036									
	NC	<	<	<									
200	OUTLET VELOCITY (FPM)	1175	1250	1540	870	950	1110	570	625	770			
	THROW IN FEET @ vt=150 FPM	14	12	10	12	10	8	10	8	7			
	Pt INCHES W.G.	.086	.097	148	.047	.056	.076	.020	.024	.036			
	NC	<	<	<	<	<	<	<	<	<			
300	OUTLET VELOCITY (FPM)	1765	1875	2305	1305	1430	1665	855	935	1150	635	730	855
	THROW IN FEET @ vt=150 FPM	21	18	15	19	16	13	17	14	12	16	14	11
	Pt INCHES W.G.	.194	.219	.331	.106	127	.173	.045	.054	.082	.025	.033	.045
	NC	22	26	31	<	<	23	<	<	<	<	<	<
400	OUTLET VELOCITY (FPM)	2350	2500	3075	1740	1905	2200	1140	1250	1535	850	975	1140
	THROW IN FEET @ vt=150 FPM	26	22	18	24	20	17	23	19	16	21	18	15
	Pt INCHES W.G.	.344	.389	.589	.189	.226	.302	.081	.097	.147	.045	.059	.081
	NC	31	35	40	23	27	32	<	<	22	<	<	<
450	OUTLET VELOCITY (FPM)	2645	2810	3460	1955	2140	2500	1285	1405	1730	955	1095	1285
	THROW IN FEET @ vt=150 FPM	28	24	20	25	21	17	24	20	17	23	19	16
	Pt INCHES W.G.	.436	.492	.746	.238	.285	.389	.102	.123	.186	.057	.024	.102
	NC	35	39	44	27	31	36	<	21	26	<	<	<
500	OUTLET VELOCITY (FPM)	2940	3125	3845	2175	2380	2775	1425	1560	1920	1060	1220	1425
	THROW IN FEET @ vt=150 FPM	30	25	21	28	24	20	27	23	19	25	21	17
	Pt INCHES W.G.	.538	.608	.921	.295	.353	.480	.126	.152	.229	.070	0,092	.026
	NC	38	42	47	30	34	39	20	24	29	<	<	22
600	OUTLET VELOCITY (FPM)	3530	3750	4615	2605	2855	3300	1715	1875	2305	1275	1460	1715
	THROW IN FEET @ vt=150 FPM	34	29	24	31	26	22	30	25	21	28	24	20
	Pt INCHES W.G.	.777	.876	1.327	.423	.508	.679	.183	.219	.331	.101	.133	.183
	NC	43	47	52	35	39	44	25	29	34	<	22	27
700	OUTLET VELOCITY (FPM)	4115	4375	5385	3040	3330	3885	2000	2185	2690	1490	1705	2000
	THROW IN FEET @ vt=150 FPM	36	31	25	34	29	24	33	28	23	31	26	22
	Pt INCHES W.G.	1.05	1,19	1.81	.576	.691	.941	.249	.298	.451	.138	.181	.249
	NC	48	52	57	40	44	49	30	34	39	23	27	32
800	OUTLET VELOCITY (FPM)	4705	5000	6150	3475	3810	4445	2285	2500	3075	1700	1950	2285
	THROW IN FEET @ vt=150 FPM	40	34	28	37	31	26	36	31	25	34	29	24
	Pt INCHES W.G.	1.38	1.56	2.36	.753	.905	1.23	.325	.389	.589	.180	.237	.325
	NC	52	56	61	44	48	53	34	38	43	27	31	36
900	OUTLET VELOCITY (FPM)	5295	5625	6925	3910	4285	5000	2570	2810	3460	1915	2195	2570
	THROW IN FEET @ vt=150 FPM	43	36	30	40	34	28	39	33	27	38	32	27
	Pt INCHES W.G.	1.75	1.97	2.98	.953	1.14	1.56	.412	.492	.746	.228	.300	.412
	NC	55	59	64	47	51	56	37	41	46	30	34	39

MODEL L-RL ROTO-LOUVER PERFORMANCE DATA

CFM	LISTED SIZES (INCHES)	9 x 6			12 x 6			18 x 6			24 x 6		
	DUTCH OPENING AREA (SQ.FT.)	0.50			0,65			0,94			1,23		
	DEFLECTION	0º	15º	30º	0º	15º	30º	0º	15º	30º	0º	15º	30º
	Ak OUTLET AREA (SQ.FT.)	.17	.16	.13	.23	.21	.18	.35	.32	.26	.47	.41	.35
1000	OUTLET VELOCITY (FPM)				4345	4760	5555	2855	3125	3845	2125	2440	2855
	THROW IN FEET @ vt=150 FPM				44	37	31	42	36	29	40	40	28
	Pt INCHES W.G.				1.18	1.41	1.92	.508	.608	.921	.281	.281	.508
	NC				51	55	60	41	45	50	34	34	43
1200	OUTLET VELOCITY (FPM)				5215	5715	6665	3430	3750	4615	2550	2925	3425
	THROW IN FEET @ vt=150 FPM				50	42	35	48	41	34	45	38	31
	Pt INCHES W.G.				1.69	2.03	2.77	.733	.877	1.33	.405	.533	.731
	NC				56	60	65	46	50	55	39	43	48
1400	OUTLET VELOCITY (FPM)							4000	4375	5385	2975	3415	4000
	THROW IN FEET @ vt=150 FPM							54	46	38	50	42	35
	Pt INCHES W.G.							.997	1.19	1.81	.552	.727	.997
	NC							51	55	60	44	48	53
1600	OUTLET VELOCITY (FPM)							4570	5000	6150	3405	3900	4570
	THROW IN FEET @ vt=150 FPM							58	49	41	55	47	38
	Pt INCHES W.G.							1.30	1.56	2.36	.723	.948	1.30
	NC							55	59	64	48	52	57
1800	OUTLET VELOCITY (FPM)										3830	4390	5140
	THROW IN FEET @ vt=150 FPM										60	51	42
	Pt INCHES W.G.										.914	1.20	1,65
	NC										52	56	61
2000	OUTLET VELOCITY (FPM)										4255	4875	5715
	THROW IN FEET @ vt=150 FPM										64	54	45
	Pt INCHES W.G.										1.13	1.48	2.03
	NC										55	59	64
2250	OUTLET VELOCITY (FPM)										4785	5485	6425
	THROW IN FEET @ vt=150 FPM										67	57	47
	Pt INCHES W.G.										1.43	1.87	2.57
	NC										59	63	68
2500	OUTLET VELOCITY (FPM)												
	THROW IN FEET @ vt=150 FPM												
	Pt INCHES W.G.												
	NC												
2750	OUTLET VELOCITY (FPM)												
	THROW IN FEET @ vt=150 FPM												
	Pt INCHES W.G.												
	NC												
3000	OUTLET VELOCITY (FPM)												
	THROW IN FEET @ vt=150 FPM												
	Pt INCHES W.G.												
	NC												

MODEL L-RL ROTO-LOUVER PERFORMANCE DATA

CFM	LISTED SIZES (INCHES)	30 x 6			36 x 6			48 x 6			60 x 6		
	DUTCH OPENING AREA (SQ.FT.)	1.52			1.81			2.40			2.98		
	DEFLECTION	0º	15º	30º	0º	15º	30º	0º	15º	30º	0º	15º	30º
	Ak OUTLET AREA (SQ.FT.)	.59	.52	.44	.72	.62	.55	.94	.83	.70	1.17	1.05	.88
100	OUTLET VELOCITY (FPM) THROW IN FEET @ vt=150 FPM Pt INCHES W.G. NC												
200	OUTLET VELOCITY (FPM) THROW IN FEET @ vt=150 FPM Pt INCHES W.G. NC												
300	OUTLET VELOCITY (FPM) THROW IN FEET @ vt=150 FPM Pt INCHES W.G. NC												
400	OUTLET VELOCITY (FPM) THROW IN FEET @ vt=150 FPM Pt INCHES W.G. NC	675 18 .028 <	770 15 .036 <	910 13 .052 <									
450	OUTLET VELOCITY (FPM) THROW IN FEET @ vt=150 FPM Pt INCHES W.G. NC	760 21 .036 <	865 18 .046 <	1020 15 .064 <	625 19 .024 <	725 16 .032 <	815 13 .041 <						
500	OUTLET VELOCITY (FPM) THROW IN FEET @ vt=150 FPM Pt INCHES W.G. NC	845 24 .044 <	960 20 .057 <	1135 17 .080 <	695 22 .030 <	805 19 .040 <	910 15 .052 <						
600	OUTLET VELOCITY (FPM) THROW IN FEET @ vt=150 FPM Pt INCHES W.G. NC	1015 28 .064 <	1150 24 .082 <	1360 20 .115 22	850 26 .043 <	965 22 .058 <	1090 18 .074 <	635 25 .025 <	720 21 .032 <	855 17 .045 <			
700	OUTLET VELOCITY (FPM) THROW IN FEET @ vt=150 FPM Pt INCHES W.G. NC	1185 32 .087 <	1345 27 .113 22	1590 19 .158 27	970 30 .058 <	1130 25 .079 <	1270 21 .100 <	745 29 .034 <	840 25 .044 <	1000 20 .062 <			
800	OUTLET VELOCITY (FPM) THROW IN FEET @ vt=150 FPM Pt INCHES W.G. NC	1355 33 .114 22	1535 29 .147 26	1815 24 .205 31	1110 32 .076 <	1290 27 .103 22	1455 22 .132 27	850 31 .045 <	960 26 .057 <	1140 22 .001 <	680 30 .028 <	760 25 .036 <	910 21 .052 <
900	OUTLET VELOCITY (FPM) THROW IN FEET @ vt=150 FPM Pt INCHES W.G. NC	1525 37 .145 25	1730 31 .186 29	2045 26 .260 34	1250 35 .097 21	1450 30 .131 25	1635 24 .166 30	955 34 .057 <	1085 29 .073 <	1285 24 .102 21	770 33 .036 <	855 28 .045 <	1020 23 .064 <

MODEL L-RL ROTO-LOUVER PERFORMANCE DATA

CFM	LISTED SIZES (INCHES)	20 x 10			25 x 10			30 x 10			35 x 10		
	DUTCH OPENING AREA (SQ.FT.)	1.60			1.97			2.35			2.73		
	DEFLECTION	0º	15º	30º	0º	15º	30º	0º	15º	30º	0º	15º	30º
	Ak OUTLET AREA (SQ.FT.)	.68	.60	.51	.85	.75	.64	1.05	.90	.76	1.20	1.05	.90
400	OUTLET VELOCITY (FPM)	590	665	785									
	THROW IN FEET @ vt=150 FPM	20	17	14									
	Pt INCHES W.G.	.021	.027	.038									
	NC	<	<	<									
600	OUTLET VELOCITY (FPM)	880	1000	1175	705	800	935	570	665	790			
	THROW IN FEET @ vt=150 FPM	27	23	19	26	22	18	23	19	16			
	Pt INCHES W.G.	.48	.062	.086	.030	.039	54	.020	.027	.039			
	NC	<	<	<	<	<	<	<	<	<			
800	OUTLET VELOCITY (FPM)	1175	1335	1570	940	1065	1250	760	890	1050	665	760	
	THROW IN FEET @ vt=150 FPM	33	28	23	32	27	22	29	25	20	27	23	
	Pt INCHES W.G.	.86	.111	.154	.055	.870	.097	.036	.049	.068	.027	.036	
	NC	<	23	28	<	<	21	<	<	<	<	<	
1000	OUTLET VELOCITY (FPM)	1470	1665	1960	1175	1335	1560	950	1110	1315	835	950	
	THROW IN FEET @ vt=150 FPM	39	33	27	38	32	27	35	30	24	33	28	
	Pt INCHES W.G.	.135	.173	.239	.086	.111	.152	.056	.076	.107	.043	.056	
	NC	28	32	37	21	25	30	<	<	24	<	<	
1200	OUTLET VELOCITY (FPM)	1765	2000	2350	1410	1600	1875	1140	1335	1580	1000	1140	
	THROW IN FEET @ vt=150 FPM	43	36	30	42	36	29	39	33	27	37	31	
	Pt INCHES W.G.	.194	.249	.344	.124	.159	.219	.081	.111	.156	.062	.081	
	NC	35	39	44	28	32	37	22	26	31	<	22	
1400	OUTLET VELOCITY (FPM)	2060	2335	2745	1645	1865	2185	1335	1555	1840	1165	1335	
	THROW IN FEET @ vt=150 FPM	48	41	34	47	40	33	44	37	31	42	36	
	Pt INCHES W.G.	.264	.339	.469	.169	.216	.298	.111	.151	.211	.085	.111	
	NC	41	45	50	34	38	43	28	32	37	24	28	
1600	OUTLET VELOCITY (FPM)	2350	2665	3125	1880	2135	2500	1525	1775	2105	1335	1525	
	THROW IN FEET @ vt=150 FPM	51	43	36	50	42	35	47	37	33	45	38	
	Pt INCHES W.G.	.344	.443	.612	.221	.284	.389	.145	.197	.276	.111	.145	
	NC	46	50	55	39	43	48	33	37	42	29	33	
1800	OUTLET VELOCITY (FPM)	2645	3000	3530	2115	2400	2810	1715	2000	2370	1500	1715	
	THROW IN FEET @ vt=150 FPM	56	47	39	55	47	38	52	44	36	50	42	
	Pt INCHES W.G.	.436	.443	.777	.279	.359	.492	.183	.249	.350	.140	.183	
	NC	51	50	60	44	48	53	38	42	47	33	37	
2000	OUTLET VELOCITY (FPM)	2940	3335	3920	2350	2665	3125	1905	2220	2630	1665	1905	
	THROW IN FEET @ vt=150 FPM	59	50	41	57	48	40	55	47	38	53	45	
	Pt INCHES W.G.	.538	.693	.958	.344	.443	.608	.226	.307	.431	.173	.183	
	NC	55	59	64	48	52	57	42	46	51	37	37	
2250	OUTLET VELOCITY (FPM)	3310	3750	4410	2645	3000	3515	2140	2500	2960	1875	2140	
	THROW IN FEET @ vt=150 FPM	64	54	45	63	53	44	61	52	43	59	50	
	Pt INCHES W.G.	.683	.877	1.21	.436	.561	.770	.285	.389	546	.219	.285	
	NC	59	63	68	52	56	61	46	50	55	42	46	

MODEL L-RL ROTO-LOUVER PERFORMANCE DATA

CFM	LISTED SIZES (INCHES)	20 x 10			25 x 10			30 x 10			35 x 10		
	DUTCH OPENING AREA (SQ.FT.)	1.60			1.97			2.35			2.73		
	DEFLECTION	0º	15º	30º	0º	15º	30º	0º	15º	30º	0º	15º	30º
	Ak OUTLET AREA (SQ.FT.)	.68	.60	.51	.85	.75	.64	1.05	.90	.76	1.20	1.05	.90
2500	OUTLET VELOCITY (FPM)	3675	4165	4900	2940	3335	3905	2380	2775	3290	2085	2380	2775
	THROW IN FEET @ vt=150 FPM	67	57	47	66	56	46	64	54	45	62	53	43
	Pt INCHES W.G.	.842	1.08	.149	.538	.693	.951	.353	.480	.675	.271	.353	.480
	NC	63	67	72	56	60	65	50	54	59	46	50	55
2750	OUTLET VELOCITY (FPM)				3235	3665	4295	2620	3055	3620	2290	2620	3055
	THROW IN FEET @ vt=150 FPM				70	59	49	68	58	48	66	56	46
	Pt INCHES W.G.				.652	.837	1.15	.428	.582	.817	.326	.428	.582
	NC				60	64	69	54	58	63	50	54	59
3000	OUTLET VELOCITY (FPM)				3530	4000	4685	2855	3335	3945	2500	2855	3335
	THROW IN FEET @ vt=150 FPM				75	64	52	73	62	51	71	60	50
	Pt INCHES W.G.				.777	0,997	1,37	.508	.693	.970	.389	.508	.693
	NC				64	68	73	58	62	67	53	.57	62
3250	OUTLET VELOCITY (FPM)							3095	3610	4275	2710	3095	3610
	THROW IN FEET @ vt=150 FPM							76	65	53	74	63	52
	Pt INCHES W.G.							.597	.812	1.13	.458	.597	.812
	NC							61	65	70	56	60	65
3500	OUTLET VELOCITY (FPM)							3335	3890	4605	2915	3335	3890
	THROW IN FEET @ vt=150 FPM							80	68	56	78	66	55
	Pt INCHES W.G.							.693	.943	1.32	.530	.693	.943
	NC							63	67	72	59	63	68
3750	OUTLET VELOCITY (FPM)							3570	4165	4935	3125	3570	4165
	THROW IN FEET @ vt=150 FPM							84	71	59	82	70	57
	Pt INCHES W.G.							.794	1,08	1.52	.608	.794	1.08
	NC							65	69	74	61	65	70
4000	OUTLET VELOCITY (FPM)										3335	3810	4445
	THROW IN FEET @ vt=150 FPM										85	72	59
	Pt INCHES W.G.										.693	.905	1.23
	NC										64	68	73
4500	OUTLET VELOCITY (FPM)												
	THROW IN FEET @ vt=150 FPM												
	Pt INCHES W.G.												
	NC												
5000	OUTLET VELOCITY (FPM)												
	THROW IN FEET @ vt=150 FPM												
	Pt INCHES W.G.												
	NC												
6000	OUTLET VELOCITY (FPM)												
	THROW IN FEET @ vt=150 FPM												
	Pt INCHES W.G.												
	NC												