

## NOMINAL 24" X 24" FACE • MODELS ZPL / Z1 / ZPDC

Nom Neck Dia	Neck Vel.	400	500	600	700	800	1000	1200	1400	1600
		Pv	0.01	0.02	0.02	0.03	0.04	0.06	0.09	0.12
6"ø 0.196	CFM	80	100	120	135	155	195	235	275	315
	Pt	0.01	0.02	0.03	0.04	0.05	0.08	0.13	0.18	0.23
	NC	<15	<15	<15	<15	16	22	28	32	36
	Throw	1-2-4	1-2-4	2-3-5	2-3-6	2-4-7	3-4-9	4-5-11	4-6-12	5-7-13
8"ø 0.349	CFM	140	175	210	245	280	350	420	490	560
	Pt	0.01	0.02	0.03	0.05	0.06	0.10	0.14	0.19	0.25
	NC	<15	<15	<15	15	19	26	31	36	40
	Throw	2-3-5	2-3-7	3-4-8	3-5-9	4-5-11	4-7-13	5-8-14	6-9-16	7-11-17
10"ø 0.545	CFM	220	275	325	380	435	545	655	765	875
	Pt	0.01	0.03	0.03	0.05	0.07	0.10	0.15	0.20	0.26
	NC	<15	<15	<15	18	22	29	34	39	43
	Throw	2-4-7	3-5-9	4-5-11	4-6-13	5-7-14	6-9-17	7-11-18	8-13-20	10-14-21
12"ø 0.785	CFM	315	395	470	550	630	785	940	1100	1255
	Pt	0.01	0.02	0.03	0.05	0.06	0.10	0.15	0.21	0.28
	NC	<15	<15	16	21	24	31	36	41	45
	Throw	3-5-9	4-6-11	5-7-14	5-8-16	6-9-18	8-11-20	9-14-22	11-16-23	12-18-25
14"ø 1.069	CFM	430	535	640	750	855	1070	1285	1500	1710
	Pt	0.01	0.03	0.03	0.05	0.07	0.11	0.16	0.22	0.29
	NC	<15	<15	18	22	26	33	38	42	46
	Throw	4-5-11	5-7-14	5-8-16	6-10-19	7-11-21	9-14-23	11-16-25	13-19-27	14-21-29
15"ø 1.227	CFM	490	615	735	860	980	1230	1475	1720	1965
	Pt	0.02	0.03	0.04	0.06	0.07	0.11	0.16	0.22	0.29
	NC	<15	<15	19	23	27	34	39	44	47
	Throw	4-6-12	5-7-15	6-9-18	7-10-21	8-12-22	10-15-25	12-18-27	14-21-29	16-22-31

### Test Standard

- ANSI / ASHRAE standard 70
- Isothermal Conditions

Non-uniform air flow into diffusers increase sound levels, operating pressures, and can distort the air distribution pattern into the space

### 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 2<sup>nd</sup> thru 7<sup>th</sup> octave bands

### Throw

- The numbers shown are throw distances, in feet, relating to terminal velocities of 150-100-50 fpm. For exposed duct applications, reduce throw distance by 30%
- Terminal velocity is the air speed, in feet per minute, measured in the air stream that is discharged from the diffuser

### Pressure

- P<sub>v</sub> represents the air velocity pressure and is calculated as  $P_v = (\text{Velocity}/4005)^2$
- P<sub>t</sub> represents total pressure requirement. Static pressure can be calculated as  $P_s = P_t - P_v$
- All pressures are stated and calculated in inches of water

## NOMINAL 24" X 24" FACE - 3 WAY PATTERN • MODELS ZPL-D / Z1-D / ZPDC-D

Nominal Neck Dia	Neck Vel.	335	415	500	580	665	830	995	1160	1330
	Pv	0.01	0.01	0.02	0.02	0.03	0.04	0.06	0.08	0.11
6"ø 0.196	CFM	65	85	100	115	130	165	195	230	260
	Pt	0.01	0.02	0.03	0.03	0.04	0.07	0.10	0.14	0.18
	NC	<15	<15	<15	<15	16	22	28	32	36
	Throw	1-2-4	1-2-4	2-3-5	2-3-6	2-4-7	3-4-9	4-5-11	4-6-12	5-7-13
8"ø 0.349	CFM	115	145	175	205	235	290	350	405	465
	Pt	0.01	0.02	0.03	0.04	0.05	0.08	0.11	0.16	0.21
	NC	<15	<15	<15	15	19	26	31	36	40
	Throw	2-3-5	2-3-7	3-4-8	3-5-9	4-5-11	4-7-13	5-8-14	6-9-16	7-11-17
10"ø 0.545	CFM	185	230	270	315	365	455	550	635	725
	Pt	0.01	0.02	0.03	0.04	0.06	0.09	0.12	0.17	0.22
	NC	<15	<15	<15	18	22	29	34	39	43
	Throw	2-4-7	3-5-9	4-5-11	4-6-13	5-7-14	6-9-17	7-11-18	8-13-20	10-14-21
12"ø 0.785	CFM	265	330	390	460	525	655	785	910	1040
	Pt	0.01	0.03	0.03	0.04	0.05	0.09	0.12	0.18	0.23
	NC	<15	<15	16	21	24	31	36	41	45
	Throw	3-5-9	4-6-11	5-7-14	5-8-16	6-9-18	8-11-20	9-14-22	11-16-23	12-18-25
14"ø 1.069	CFM	350	445	545	625	710	905	1075	1240	1420
	Pt	0.01	0.02	0.03	0.04	0.06	0.09	0.13	0.19	0.25
	NC	<15	<15	18	22	26	33	38	42	46
	Throw	4-5-11	5-7-14	5-8-16	6-10-19	7-11-21	9-14-23	11-16-25	13-19-27	14-21-29
15"ø 1.227	CFM	410	515	615	715	815	1020	1235	1425	1630
	Pt	0.02	0.02	0.04	0.05	0.06	0.10	0.14	0.19	0.24
	NC	<15	<15	19	23	27	34	39	44	47
	Throw	4-6-12	5-7-15	6-9-18	7-10-21	8-12-22	10-15-25	12-18-27	14-21-29	16-22-31

3 way pattern data reflects result of closing 1 of the 4 deflectors

### Test Standard

- ANSI / ASHRAE standard 70
- Isothermal Conditions

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### 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 2<sup>nd</sup> thru 7<sup>th</sup> octave bands

### Throw

- The numbers shown are throw distances, in feet, relating to terminal velocities of 150-100-50 fpm. For exposed duct applications, reduce throw distance by 30%
- Terminal velocity is the air speed, in feet per minute, measured in the air stream that is discharged from the diffuser

### Pressure

- P<sub>v</sub> represents the air velocity pressure and is calculated as  $P_v = (Velocity/4005)^2$
- P<sub>t</sub> represents total pressure requirement. Static pressure can be calculated as  $P_s = P_t - P_v$
- All pressures are stated and calculated in inches of water

**NOMINAL 24" X 24" FACE - 2 WAY PATTERN • MODELS ZPL-D / Z1-D / ZPDC-D**

Nom Neck Dia	Neck Vel.	290	360	435	505	575	720	865	1010	1155
	Pv	0.01	0.01	0.01	0.02	0.02	0.03	0.05	0.06	0.08
6"ø 0.196	CFM	60	70	85	95	110	140	170	200	225
	Pt	0.01	0.01	0.02	0.03	0.04	0.06	0.09	0.12	0.16
	NC	<15	<15	<15	<15	16	22	28	32	36
	Throw	1-2-4	1-2-4	2-3-5	2-3-6	2-4-7	3-4-9	4-5-11	4-6-12	5-7-13
8"ø 0.349	CFM	100	125	150	175	200	250	300	350	400
	Pt	0.01	0.02	0.02	0.03	0.04	0.07	0.10	0.14	0.18
	NC	<15	<15	<15	15	19	26	31	36	40
	Throw	2-3-5	2-3-7	3-4-8	3-5-9	4-5-11	4-7-13	5-8-14	6-9-16	7-11-17
10"ø 0.545	CFM	160	195	235	270	310	390	475	550	630
	Pt	0.01	0.02	0.03	0.04	0.05	0.08	0.10	0.15	0.19
	NC	<15	<15	<15	18	22	29	34	39	43
	Throw	2-4-7	3-5-9	4-5-11	4-6-13	5-7-14	6-9-17	7-11-18	8-13-20	10-14-21
12"ø 0.785	CFM	225	280	335	395	450	560	680	790	905
	Pt	0.01	0.03	0.03	0.04	0.05	0.08	0.11	0.16	0.20
	NC	<15	<15	16	21	24	31	36	41	45
	Throw	3-5-9	4-6-11	5-7-14	5-8-16	6-9-18	8-11-20	9-14-22	11-16-23	12-18-25
14"ø 1.069	CFM	325	380	450	530	610	770	925	1080	1230
	Pt	0.01	0.02	0.03	0.04	0.05	0.08	0.12	0.17	0.22
	NC	<15	<15	18	22	26	33	38	42	46
	Throw	4-5-11	5-7-14	5-8-16	6-10-19	7-11-21	9-14-23	11-16-25	13-19-27	14-21-29
15"ø 1.227	CFM	350	435	525	615	700	880	1065	1235	1415
	Pt	0.02	0.02	0.03	0.04	0.06	0.09	0.12	0.17	0.21
	NC	<15	<15	19	23	27	34	39	44	47
	Throw	4-6-12	5-7-15	6-9-18	7-10-21	8-12-22	10-15-25	12-18-27	14-21-29	16-22-31

2 way pattern data reflects result of closing 2 of the 4 deflectors

**Test Standard**

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**Throw**

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- Terminal velocity is the air speed, in feet per minute, measured in the air stream that is discharged from the diffuser

**Pressure**

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- P<sub>t</sub> represents total pressure requirement. Static pressure can be calculated as  $P_s = P_t - P_v$
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