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1310, 1310TF & 51310
 These perforated face supply grilles feature 5/16" diameter holes on 7/16" staggered centers.



13SD
 This perforated face supply grille features 3/16" diameter holes on 9/32" staggered centers.



1320
 This lattice face supply grille features 2"x2" square holes and wire mesh between face plate and backer plate.



1330
 This louvered face supply grille features a wire mesh between the mullion and mesh guard. Blades set horizontally at 40°.



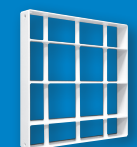
1340
 This lattice face with louvered core supply diffuser features 13/16" square holes and 3/16" fret.



51350
 This aluminum supply and return grille features 3/16"x3/4" bars on 1/2" centers. Bars are set at 0° deflection.



1380 & 51380
 These lattice or perforated face plates feature 13/16" square holes with 3/16" fret or 5/16" diameter holes on 7/16" staggered centers.



1390
 This barred duct work features a vertical or horizontal security bar. Round bars are 3/4" diameter. Flat bars are 2 1/2"x1/4".



1390F
 This barred duct work with sleeve features vertical and horizontal round security bars. Round bars are 3/4" diameter.

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Introduction: 13SD

The 13SD security grille is designed for suicide deterrent applications. Krueger offers this product to comply with California TITLE 24, which has become a popular benchmark for maximum security air distribution products.

MODEL

13SD - Steel suicide deterrent security grille with 3/16" thick perforated face and 3/16" holes on 9/32" staggered centers.

FEATURES

- 3/16" Thick stitch welded sleeve (steel).
- 30"x30" Maximum single unit size.
- 6", 8", 10", 12", 14", 16", and 18" Sleeve lengths.

ACCESSORIES

- Unpainted steel angle frame shipped loose for field installation, constructed of 1 1/2"x1 1/2"x3/16" angle.
- Steel 3/4" diameter security bars on 6" centers.
- Steel 3"x3/4" diameter anchor bars.
- Two unpainted loose steel angles shipped loose for field installation; constructed of 1 1/2"x1 1/2"x3/16" angle.
- Rear operated OBD.

FINISHES

- Standard finish is #44 British White.
- Optional finish is Mill.

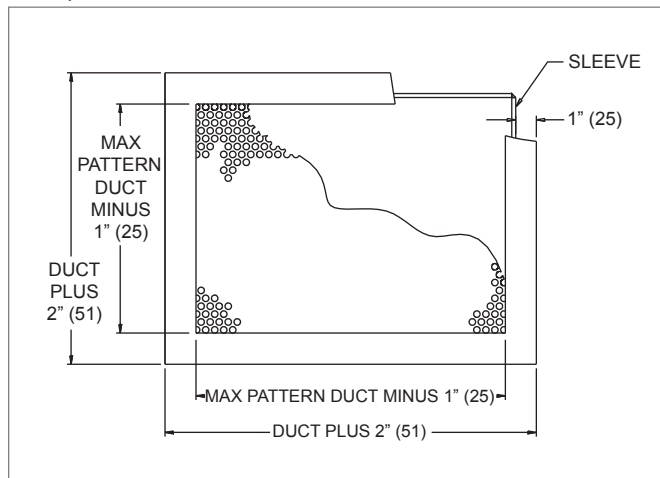


13SD

SECURITY GRILLES

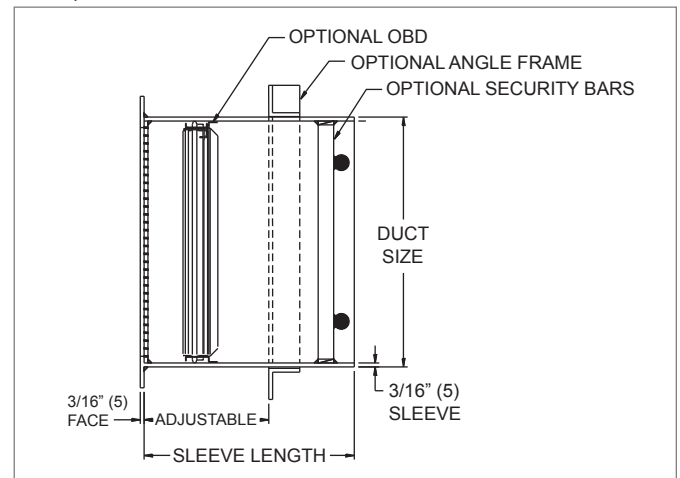
13SD Dimensional Information

13SD, FACE VIEW



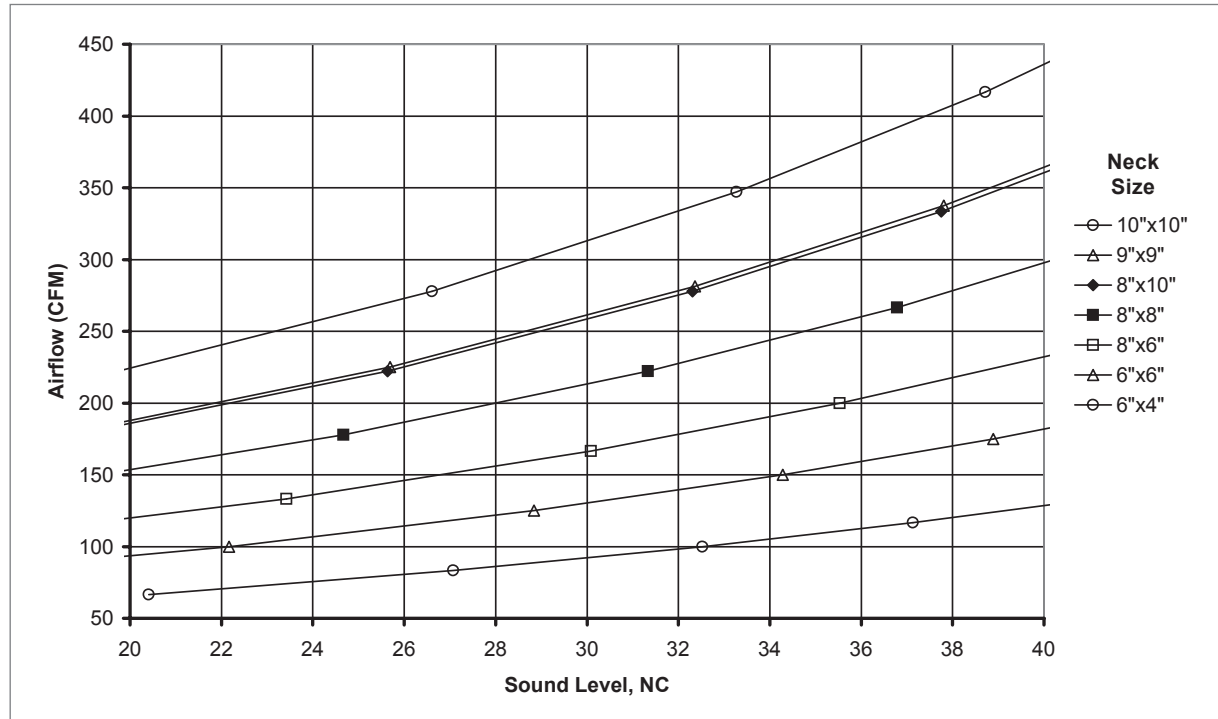
NOTE: Dimensions in parentheses are mm.

13SD, CROSS SECTION

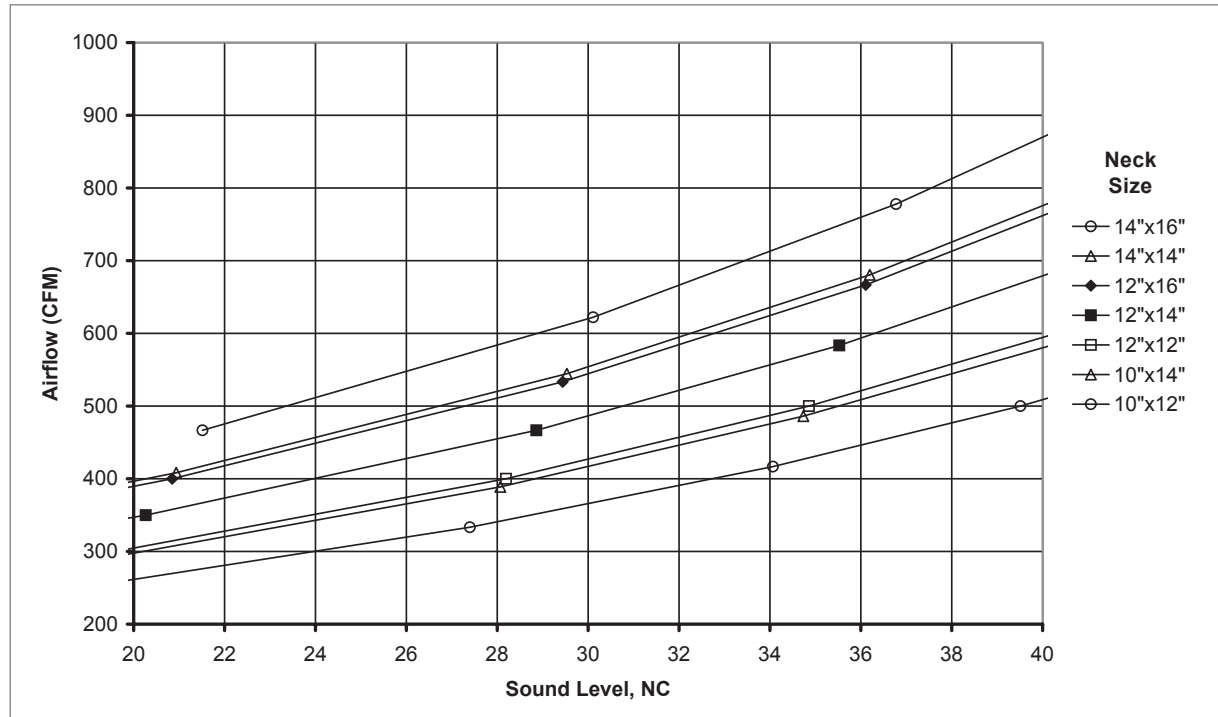


13SD Reference Charts

AIRFLOW VS. NC LEVEL: 13SD (NO DAMPER)

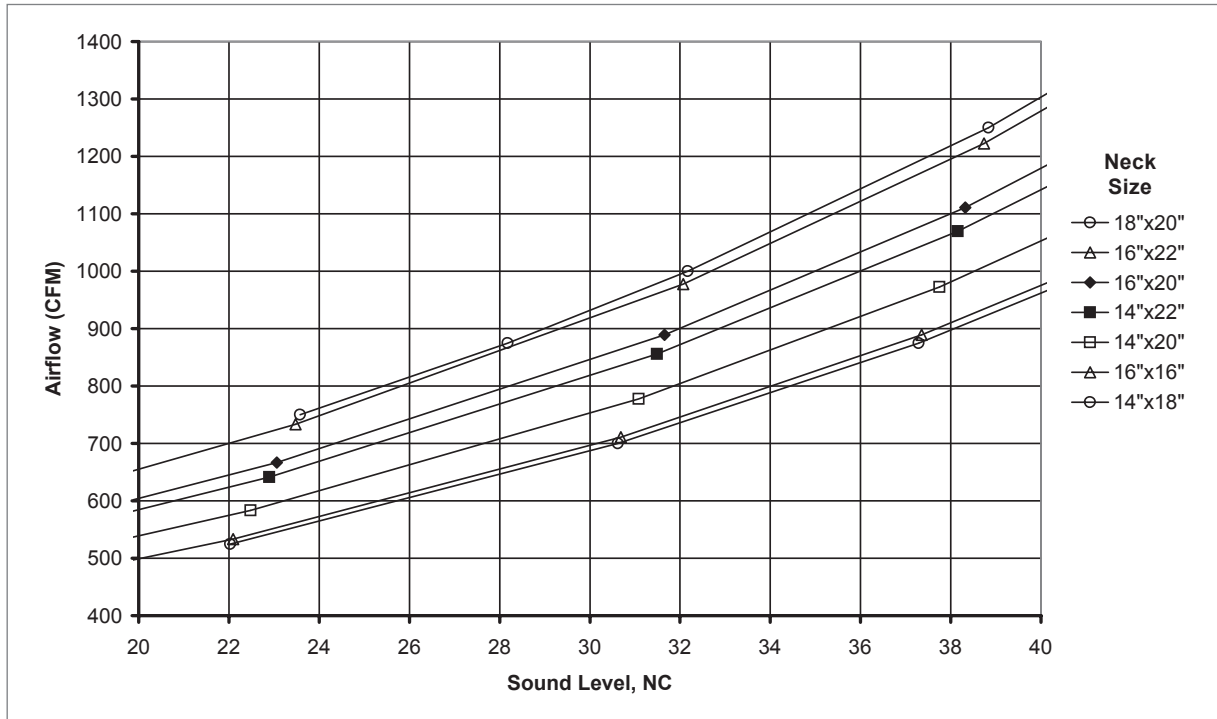


AIRFLOW VS. NC LEVEL: 13SD (NO DAMPER)

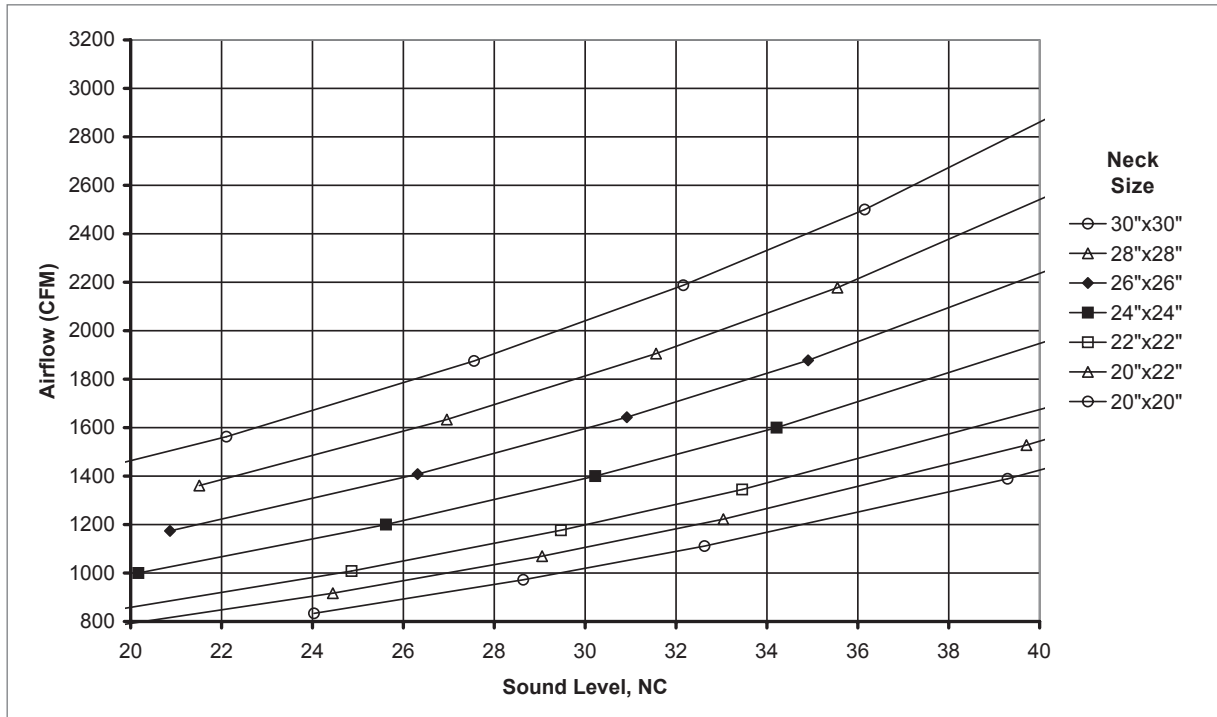


13SD Reference Charts

AIRFLOW VS. NC LEVEL: 13SD (NO DAMPER)



AIRFLOW VS. NC LEVEL: 13SD (NO DAMPER)



13SD Performance Data: Horizontal Throw

IP/METRIC DATA: 13SD (NO DAMPER)

IP Data							Metric Data						
Nom Duct	Duct Area	Neck Vel	Air Flow	Pt	Throw	NC	Nom Duct	Duct Area	Neck Vel	Air Flow	Pt	Throw	
in	ft²	FPM	CFM	"WG	ft		mm	m²	m/s	L/s	Pa	m	
6" x 4"	0.167	100	17	.005	1 - 2 - 4	-	152 x 102	0.015	0.51	8	1.3	0.2 - 0.5 - 1.2	
		150	25	.012	2 - 3 - 6	-			0.76	12	3.0	0.5 - 0.9 - 1.8	
		200	33	.022	3 - 4 - 8	-			1.02	16	5.4	0.8 - 1.2 - 2.4	
		300	50	.049	4 - 6 - 11	12			1.52	24	12.1	1.2 - 1.8 - 3.3	
		400	67	.087	5 - 8 - 13	20			2.03	31	21.6	1.6 - 2.4 - 3.9	
		500	83	.135	6 - 10 - 14	27			2.54	39	33.7	2.0 - 3.0 - 4.3	
		600	100	.195	8 - 11 - 16	33			3.05	47	48.5	2.4 - 3.3 - 4.7	
		700	117	.265	9 - 12 - 17	37			3.56	55	66.0	2.8 - 3.6 - 5.1	
6" x 6"	0.250	800	133	.346	10 - 13 - 18	41	152 x 152	0.023	4.06	63	86.3	3.2 - 3.9 - 5.5	
		100	25	.005	1 - 2 - 5	-			0.51	12	1.3	0.3 - 0.6 - 1.5	
		150	38	.012	2 - 4 - 7	-			0.76	18	3.0	0.6 - 1.1 - 2.2	
		200	50	.022	3 - 5 - 10	-			1.02	24	5.4	1.0 - 1.5 - 2.9	
		300	75	.049	5 - 7 - 13	14			1.52	35	12.1	1.5 - 2.2 - 4.1	
		400	100	.087	6 - 10 - 16	22			2.03	47	21.6	1.9 - 2.9 - 4.7	
		500	125	.135	8 - 12 - 17	29			2.54	59	33.7	2.4 - 3.6 - 5.3	
		600	150	.195	10 - 13 - 19	34			3.05	71	48.5	2.9 - 4.1 - 5.8	
8" x 6"	0.333	700	175	.265	11 - 15 - 21	39	203 x 152	0.031	3.56	83	66.0	3.4 - 4.4 - 6.3	
		800	200	.346	13 - 16 - 22	43			4.06	94	86.3	3.9 - 4.7 - 6.7	
		100	33	.005	1 - 2 - 6	-			0.51	16	1.3	0.3 - 0.7 - 1.7	
		150	50	.012	2 - 4 - 8	-			0.76	24	3.0	0.7 - 1.3 - 2.5	
		200	67	.022	4 - 6 - 11	-			1.02	31	5.4	1.1 - 1.7 - 3.4	
		300	100	.049	6 - 8 - 16	15			1.52	47	12.1	1.7 - 2.5 - 4.7	
		400	133	.087	7 - 11 - 18	23			2.03	63	21.6	2.2 - 3.4 - 5.5	
		500	167	.135	9 - 14 - 20	30			2.54	79	33.7	2.8 - 4.2 - 6.1	
8" x 8"	0.444	600	200	.195	11 - 16 - 22	36	203 x 203	0.041	3.05	94	48.5	3.4 - 4.7 - 6.7	
		700	233	.265	13 - 17 - 24	40			3.56	110	66.0	3.9 - 5.1 - 7.2	
		800	267	.346	15 - 18 - 25	44			4.06	126	86.3	4.5 - 5.5 - 7.7	
		100	44	.005	1 - 3 - 6	-			0.51	21	1.3	0.4 - 0.8 - 1.9	
		150	67	.012	3 - 5 - 10	-			0.76	31	3.0	0.8 - 1.5 - 2.9	
		200	89	.022	4 - 6 - 13	-			1.02	42	5.4	1.3 - 1.9 - 3.9	
		300	133	.049	6 - 10 - 18	16			1.52	63	12.1	1.9 - 2.9 - 5.5	
		400	178	.087	8 - 13 - 21	25			2.03	84	21.6	2.6 - 3.9 - 6.3	
8" x 10"	0.556	500	222	.135	11 - 16 - 23	31	203 x 254	0.052	2.54	105	33.7	3.2 - 4.8 - 7.0	
		600	267	.195	13 - 18 - 25	37			3.05	126	48.5	3.9 - 5.5 - 7.7	
		700	311	.265	15 - 19 - 27	41			3.56	147	66.0	4.5 - 5.9 - 8.3	
		800	356	.346	17 - 21 - 29	45			4.06	168	86.3	5.1 - 6.3 - 8.9	
		100	56	.005	1 - 3 - 7	-			0.51	26	1.3	0.4 - 0.9 - 2.2	
		150	83	.012	3 - 5 - 11	-			0.76	39	3.0	0.9 - 1.6 - 3.2	
		200	111	.022	5 - 7 - 14	-			1.02	52	5.4	1.4 - 2.2 - 4.3	
		300	167	.049	7 - 11 - 20	17			1.52	79	12.1	2.2 - 3.2 - 6.1	
9" x 9"	0.563	400	222	.087	9 - 14 - 23	26	229 x 229	0.052	2.03	105	21.6	2.9 - 4.3 - 7.0	
		500	278	.135	12 - 18 - 26	32			2.54	131	33.7	3.6 - 5.4 - 7.9	
		600	333	.195	14 - 20 - 28	38			3.05	157	48.5	4.3 - 6.1 - 8.6	
		700	389	.265	17 - 22 - 31	42			3.56	184	66.0	5.0 - 6.6 - 9.3	
		800	444	.346	19 - 23 - 33	46			4.06	210	86.3	5.8 - 7.0 - 10.0	
		100	56	.005	1 - 3 - 7	-			0.51	27	1.3	0.4 - 0.9 - 2.2	
		150	84	.012	3 - 5 - 11	-			0.76	40	3.0	0.9 - 1.6 - 3.3	
		200	113	.022	5 - 7 - 14	-			1.02	53	5.4	1.5 - 2.2 - 4.4	
9" x 9"	0.563	300	169	.049	7 - 11 - 20	17	229 x 229	0.052	1.52	80	12.1	2.2 - 3.3 - 6.1	
		400	225	.087	10 - 14 - 23	26			2.03	106	21.6	2.9 - 4.4 - 7.1	
		500	281	.135	12 - 18 - 26	32			2.54	133	33.7	3.6 - 5.4 - 7.9	
		600	338	.195	14 - 20 - 29	38			3.05	159	48.5	4.4 - 6.1 - 8.7	
		700	394	.265	17 - 22 - 31	42			3.56	186	66.0	5.1 - 6.6 - 9.4	
		800	450	.346	19 - 23 - 33	46			4.06	212	86.3	5.8 - 7.1 - 10.0	

NOTES: Throw values are given for isothermal conditions and terminal velocities of 150, 100, and 50 FPM (0.75, 0.50, and 0.25 m/s). NC values are based on octave band 2 - 7 sound power levels minus a room absorption of 10dB, re 10⁻¹² Watts. Dash in space denotes a NC value of less than 10. Data was obtained from tests conducted in accordance with ANSI/ASHRAE Standard 70, ISO Standard 5219, and ISO Standard 3741. See Krueger's selection program for performance data not shown, including octave band data.

13SD Performance Data: Horizontal Throw
IP/METRIC DATA: 13SD (NO DAMPER)

IP Data						NC	Metric Data					
Nom Duct	Duct Area	Neck Vel	Air Flow	Pt	Throw		Nom Duct	Duct Area	Neck Vel	Air Flow	Pt	Throw
in	ft ²	FPM	CFM	"WG	ft		mm	m ²	m/s	L/s	Pa	m
10" x 10"	0.694	100	69	.005	1 - 3 - 8	-	254 x 254	0.065	0.51	33	1.3	0.5 - 1.0 - 2.4
		150	104	.012	3 - 6 - 12	-			0.76	49	3.0	1.0 - 1.8 - 3.6
		200	139	.022	5 - 8 - 16	-			1.02	66	5.4	1.6 - 2.4 - 4.8
		250	174	.034	7 - 10 - 20	13			1.27	82	8.4	2.0 - 3.0 - 6.0
		300	208	.049	8 - 12 - 22	18			1.52	98	12.1	2.4 - 3.6 - 6.8
		400	278	.087	11 - 16 - 26	27			2.03	131	21.6	3.2 - 4.8 - 7.9
		500	347	.135	13 - 20 - 29	33			2.54	164	33.7	4.0 - 6.0 - 8.8
		600	417	.195	16 - 22 - 32	39			3.05	197	48.5	4.8 - 6.8 - 9.7
10" x 12"	0.833	700	486	.265	19 - 24 - 34	43	254 x 305	0.077	3.56	229	66.0	5.6 - 7.4 - 10.4
		100	83	.005	2 - 4 - 9	-			0.51	39	1.3	0.5 - 1.1 - 2.6
		150	125	.012	4 - 7 - 13	-			0.76	59	3.0	1.1 - 2.0 - 4.0
		200	167	.022	6 - 9 - 17	-			1.02	79	5.4	1.8 - 2.6 - 5.3
		250	208	.034	7 - 11 - 22	13			1.27	98	8.4	2.2 - 3.3 - 6.6
		300	250	.049	9 - 13 - 25	19			1.52	118	12.1	2.6 - 4.0 - 7.5
		400	333	.087	12 - 17 - 28	27			2.03	157	21.6	3.5 - 5.3 - 8.6
		500	417	.135	15 - 22 - 32	34			2.54	197	33.7	4.4 - 6.6 - 9.7
10" x 14"	0.972	600	500	.195	17 - 25 - 35	40	254 x 356	0.090	3.05	236	48.5	5.3 - 7.5 - 10.6
		700	583	.265	20 - 27 - 38	44			3.56	275	66.0	6.2 - 8.1 - 11.4
		100	97	.005	2 - 4 - 9	-			0.51	46	1.3	0.5 - 1.2 - 2.9
		150	146	.012	4 - 7 - 14	-			0.76	69	3.0	1.2 - 2.1 - 4.3
		200	194	.022	6 - 9 - 19	-			1.02	92	5.4	1.9 - 2.9 - 5.7
		250	243	.034	8 - 12 - 24	14			1.27	115	8.4	2.4 - 3.6 - 7.2
		300	292	.049	9 - 14 - 27	19			1.52	138	12.1	2.9 - 4.3 - 8.1
		400	389	.087	13 - 19 - 31	28			2.03	184	21.6	3.8 - 5.7 - 9.3
12" x 12"	1.000	500	486	.135	16 - 24 - 34	35	305 x 305	0.093	2.54	229	33.7	4.8 - 7.2 - 10.4
		600	583	.195	19 - 27 - 38	40			3.05	275	48.5	5.7 - 8.1 - 11.4
		700	681	.265	22 - 29 - 41	45			3.56	321	66.0	6.7 - 8.7 - 12.3
		100	100	.005	2 - 4 - 10	-			0.51	47	1.3	0.5 - 1.2 - 2.9
		150	150	.012	4 - 7 - 14	-			0.76	71	3.0	1.2 - 2.2 - 4.4
		200	200	.022	6 - 10 - 19	-			1.02	94	5.4	1.9 - 2.9 - 5.8
		250	250	.034	8 - 12 - 24	14			1.27	118	8.4	2.4 - 3.6 - 7.3
		300	300	.049	10 - 14 - 27	20			1.52	142	12.1	2.9 - 4.4 - 8.2
12" x 14"	1.167	400	400	.087	13 - 19 - 31	28	305 x 356	0.108	2.03	189	21.6	3.9 - 5.8 - 9.5
		500	500	.135	16 - 24 - 35	35			2.54	236	33.7	4.8 - 7.3 - 10.6
		600	600	.195	19 - 27 - 38	40			3.05	283	48.5	5.8 - 8.2 - 11.6
		700	700	.265	22 - 29 - 41	45			3.56	330	66.0	6.8 - 8.8 - 12.5
		100	117	.005	2 - 4 - 10	-			0.51	55	1.3	0.6 - 1.3 - 3.1
		150	175	.012	4 - 8 - 15	-			0.76	83	3.0	1.3 - 2.4 - 4.7
		200	233	.022	7 - 10 - 21	-			1.02	110	5.4	2.1 - 3.1 - 6.3
		250	292	.034	9 - 13 - 26	15			1.27	138	8.4	2.6 - 3.9 - 7.8
12" x 16"	1.333	300	350	.049	10 - 15 - 29	20	305 x 406	0.124	1.52	165	12.1	3.1 - 4.7 - 8.8
		400	467	.087	14 - 21 - 34	29			2.03	220	21.6	4.2 - 6.3 - 10.2
		500	583	.135	17 - 26 - 38	36			2.54	275	33.7	5.2 - 7.8 - 11.4
		600	700	.195	21 - 29 - 41	41			3.05	330	48.5	6.3 - 8.8 - 12.5
		700	817	.265	24 - 31 - 44	46			3.56	385	66.0	7.3 - 9.6 - 13.5
		100	133	.005	2 - 5 - 11	-			0.51	63	1.3	0.6 - 1.4 - 3.4
		150	200	.012	5 - 8 - 17	-			0.76	94	3.0	1.4 - 2.5 - 5.0
		200	267	.022	7 - 11 - 22	-			1.02	126	5.4	2.2 - 3.4 - 6.7
		250	333	.034	9 - 14 - 28	15			1.27	157	8.4	2.8 - 4.2 - 8.4
		300	400	.049	11 - 17 - 31	21			1.52	189	12.1	3.4 - 5.0 - 9.5
		400	533	.087	15 - 22 - 36	29			2.03	252	21.6	4.5 - 6.7 - 10.9
		500	667	.135	18 - 28 - 40	36			2.54	315	33.7	5.6 - 8.4 - 12.2
		600	800	.195	22 - 31 - 44	42			3.05	378	48.5	6.7 - 9.5 - 13.4
		700	933	.265	26 - 34 - 48	46			3.56	440	66.0	7.8 - 10.2 - 14.4

NOTES: Throw values are given for isothermal conditions and terminal velocities of 150, 100, and 50 FPM (0.75, 0.50, and 0.25 m/s). NC values are based on octave band 2 - 7 sound power levels minus a room absorption of 10dB, re 10⁻¹² Watts. Dash in space denotes a NC value of less than 10. Data was obtained from tests conducted in accordance with ANSI/ASHRAE Standard 70, ISO Standard 5219, and ISO Standard 3741. See Krueger's selection program for performance data not shown, including octave band data.

13SD Performance Data: Horizontal Throw

IP/METRIC DATA: 13SD (NO DAMPER)

IP Data							Metric Data						
Nom Duct	Duct Area	Neck Vel	Air Flow	Pt	Throw	NC	Nom Duct	Duct Area	Neck Vel	Air Flow	Pt	Throw	
in	ft²	FPM	CFM	"WG	ft		mm	m²	m/s	L/s	Pa	m	
14" x 14"	1.361	100	136	.005	2 - 5 - 11	-	356 x 356	0.126	0.51	64	1.3	0.6 - 1.4 - 3.4	
		150	204	.012	5 - 8 - 17	-			0.76	96	3.0	1.4 - 2.5 - 5.1	
		200	272	.022	7 - 11 - 22	-			1.02	128	5.4	2.3 - 3.4 - 6.8	
		250	340	.034	9 - 14 - 28	15			1.27	161	8.4	2.8 - 4.2 - 8.5	
		300	408	.049	11 - 17 - 31	21			1.52	193	12.1	3.4 - 5.1 - 9.6	
		400	544	.087	15 - 22 - 36	30			2.03	257	21.6	4.5 - 6.8 - 11.0	
		500	681	.135	19 - 28 - 41	36			2.54	321	33.7	5.6 - 8.5 - 12.3	
		600	817	.195	22 - 31 - 44	42			3.05	385	48.5	6.8 - 9.6 - 13.5	
14" x 16"	1.556	700	953	.265	26 - 34 - 48	46	356 x 406	0.145	3.56	450	66.0	7.9 - 10.3 - 14.6	
		100	156	.005	2 - 5 - 12	-			0.51	73	1.3	0.7 - 1.5 - 3.6	
		150	233	.012	5 - 9 - 18	-			0.76	110	3.0	1.5 - 2.7 - 5.4	
		200	311	.022	8 - 12 - 24	-			1.02	147	5.4	2.4 - 3.6 - 7.2	
		250	389	.034	10 - 15 - 30	16			1.27	184	8.4	3.0 - 4.5 - 9.0	
		300	467	.049	12 - 18 - 34	22			1.52	220	12.1	3.6 - 5.4 - 10.2	
		400	622	.087	16 - 24 - 39	30			2.03	294	21.6	4.8 - 7.2 - 11.8	
		500	778	.135	20 - 30 - 43	37			2.54	367	33.7	6.0 - 9.0 - 13.2	
14" x 18"	1.750	600	933	.195	24 - 34 - 48	42	356 x 457	0.163	3.05	440	48.5	7.2 - 10.2 - 14.4	
		700	1089	.265	28 - 36 - 51	47			3.56	514	66.0	8.4 - 11.0 - 15.6	
		100	175	.005	2 - 5 - 13	-			0.51	83	1.3	0.7 - 1.6 - 3.8	
		150	263	.012	5 - 9 - 19	-			0.76	124	3.0	1.6 - 2.9 - 5.8	
		200	350	.022	8 - 13 - 25	-			1.02	165	5.4	2.6 - 3.8 - 7.7	
		250	438	.034	11 - 16 - 32	17			1.27	206	8.4	3.2 - 4.8 - 9.6	
		300	525	.049	13 - 19 - 36	22			1.52	248	12.1	3.8 - 5.8 - 10.8	
		400	700	.087	17 - 25 - 41	31			2.03	330	21.6	5.1 - 7.7 - 12.5	
16" x 16"	1.778	500	875	.135	21 - 32 - 46	37	406 x 406	0.165	2.54	413	33.7	6.4 - 9.6 - 14.0	
		600	1050	.195	25 - 36 - 50	43			3.05	496	48.5	7.7 - 10.8 - 15.3	
		700	1225	.265	29 - 39 - 54	47			3.56	578	66.0	9.0 - 11.7 - 16.6	
		100	178	.005	2 - 5 - 13	-			0.51	84	1.3	0.7 - 1.6 - 3.9	
		150	267	.012	5 - 10 - 19	-			0.76	126	3.0	1.6 - 2.9 - 5.8	
		200	356	.022	8 - 13 - 25	-			1.02	168	5.4	2.6 - 3.9 - 7.7	
		250	444	.034	11 - 16 - 32	17			1.27	210	8.4	3.2 - 4.8 - 9.7	
		300	533	.049	13 - 19 - 36	22			1.52	252	12.1	3.9 - 5.8 - 10.9	
14" x 20"	1.944	400	711	.087	17 - 25 - 41	31	356 x 508	0.181	2.03	336	21.6	5.2 - 7.7 - 12.6	
		500	889	.135	21 - 32 - 46	37			2.54	420	33.7	6.4 - 9.7 - 14.1	
		600	1067	.195	25 - 36 - 51	43			3.05	503	48.5	7.7 - 10.9 - 15.4	
		700	1244	.265	30 - 39 - 55	47			3.56	587	66.0	9.0 - 11.8 - 16.7	
		100	194	.005	2 - 6 - 13	-			0.51	92	1.3	0.8 - 1.7 - 4.0	
		150	292	.012	6 - 10 - 20	-			0.76	138	3.0	1.7 - 3.0 - 6.1	
		200	389	.022	9 - 13 - 27	-			1.02	184	5.4	2.7 - 4.0 - 8.1	
		250	486	.034	11 - 17 - 33	17			1.27	229	8.4	3.4 - 5.1 - 10.1	
14" x 22"	2.139	300	583	.049	13 - 20 - 38	22	356 x 559	0.199	1.52	275	12.1	4.0 - 6.1 - 11.4	
		400	778	.087	18 - 27 - 43	31			2.03	367	21.6	5.4 - 8.1 - 13.2	
		500	972	.135	22 - 33 - 49	38			2.54	459	33.7	6.7 - 10.1 - 14.7	
		600	1167	.195	27 - 38 - 53	43			3.05	551	48.5	8.1 - 11.4 - 16.2	
		700	1361	.265	31 - 41 - 57	48			3.56	642	66.0	9.4 - 12.3 - 17.4	
		100	214	.005	3 - 6 - 14	-			0.51	101	1.3	0.8 - 1.8 - 4.2	
		150	321	.012	6 - 10 - 21	-			0.76	151	3.0	1.8 - 3.2 - 6.4	
		200	428	.022	9 - 14 - 28	11			1.02	202	5.4	2.8 - 4.2 - 8.5	
14" x 22"	2.139	250	535	.034	12 - 17 - 35	17	356 x 559	0.199	1.27	252	8.4	3.5 - 5.3 - 10.6	
		300	642	.049	14 - 21 - 39	23			1.52	303	12.1	4.2 - 6.4 - 12.0	
		400	856	.087	19 - 28 - 46	31			2.03	404	21.6	5.7 - 8.5 - 13.8	
		500	1069	.135	23 - 35 - 51	38			2.54	505	33.7	7.1 - 10.6 - 15.5	
		600	1283	.195	28 - 39 - 56	44			3.05	606	48.5	8.5 - 12.0 - 16.9	
		700	1497	.265	33 - 43 - 60	48			3.56	707	66.0	9.9 - 12.9 - 18.3	

NOTES: Throw values are given for isothermal conditions and terminal velocities of 150, 100, and 50 FPM (0.75, 0.50, and 0.25 m/s). NC values are based on octave band 2 - 7 sound power levels minus a room absorption of 10dB, re 10⁻¹² Watts. Dash in space denotes a NC value of less than 10. Data was obtained from tests conducted in accordance with ANSI/ASHRAE Standard 70, ISO Standard 5219, and ISO Standard 3741. See Krueger's selection program for performance data not shown, including octave band data.

13SD Performance Data: Horizontal Throw
IP/METRIC DATA: 13SD (NO DAMPER)

IP Data						NC	Metric Data					
Nom Duct	Duct Area	Neck Vel	Air Flow	Pt	Throw		Nom Duct	Duct Area	Neck Vel	Air Flow	Pt	Throw
in	ft²	FPM	CFM	"WG	ft		mm	m²	m/s	L/s	Pa	m
16" x 20"	2.222	100	222	.005	3 - 6 - 14	-	406 x 508	0.206	0.51	105	1.3	0.8 - 1.8 - 4.3
		150	333	.012	6 - 11 - 21	-			0.76	157	3.0	1.8 - 3.2 - 6.5
		200	444	.022	9 - 14 - 28	11			1.02	210	5.4	2.9 - 4.3 - 8.7
		250	556	.034	12 - 18 - 36	18			1.27	262	8.4	3.6 - 5.4 - 10.8
		300	667	.049	14 - 21 - 40	23			1.52	315	12.1	4.3 - 6.5 - 12.2
		400	889	.087	19 - 28 - 46	32			2.03	420	21.6	5.8 - 8.7 - 14.1
		500	1111	.135	24 - 36 - 52	38			2.54	524	33.7	7.2 - 10.8 - 15.8
		600	1333	.195	28 - 40 - 57	44			3.05	629	48.5	8.7 - 12.2 - 17.3
16" x 22"	2.444	100	244	.005	3 - 6 - 15	-	406 x 559	0.227	0.51	115	1.3	0.9 - 1.9 - 4.5
		150	367	.012	6 - 11 - 22	-			0.76	173	3.0	1.9 - 3.4 - 6.8
		200	489	.022	10 - 15 - 30	11			1.02	231	5.4	3.0 - 4.5 - 9.1
		250	611	.034	12 - 19 - 37	18			1.27	288	8.4	3.8 - 5.7 - 11.3
		300	733	.049	15 - 22 - 42	23			1.52	346	12.1	4.5 - 6.8 - 12.8
		400	978	.087	20 - 30 - 49	32			2.03	461	21.6	6.1 - 9.1 - 14.8
		500	1222	.135	25 - 37 - 54	39			2.54	577	33.7	7.6 - 11.3 - 16.5
		600	1467	.195	30 - 42 - 60	44			3.05	692	48.5	9.1 - 12.8 - 18.1
18" x 20"	2.500	100	250	.005	3 - 6 - 15	-	457 x 508	0.232	0.51	118	1.3	0.9 - 1.9 - 4.6
		150	375	.012	6 - 11 - 23	-			0.76	177	3.0	1.9 - 3.4 - 6.9
		200	500	.022	10 - 15 - 30	11			1.02	236	5.4	3.1 - 4.6 - 9.2
		250	625	.034	13 - 19 - 38	18			1.27	295	8.4	3.8 - 5.7 - 11.5
		300	750	.049	15 - 23 - 43	24			1.52	354	12.1	4.6 - 6.9 - 13.0
		350	875	.066	18 - 26 - 46	28			1.78	413	16.5	5.4 - 8.0 - 14.0
		400	1000	.087	20 - 30 - 49	32			2.03	472	21.6	6.1 - 9.2 - 15.0
		500	1250	.135	25 - 38 - 55	39			2.54	590	33.7	7.6 - 11.5 - 16.7
20" x 20"	2.778	100	278	.005	3 - 7 - 16	-	508 x 508	0.258	0.51	131	1.3	0.9 - 2.0 - 4.8
		150	417	.012	7 - 12 - 24	-			0.76	197	3.0	2.0 - 3.6 - 7.3
		200	556	.022	11 - 16 - 32	12			1.02	262	5.4	3.2 - 4.8 - 9.7
		250	694	.034	13 - 20 - 40	19			1.27	328	8.4	4.0 - 6.0 - 12.1
		300	833	.049	16 - 24 - 45	24			1.52	393	12.1	4.8 - 7.3 - 13.7
		350	972	.066	19 - 28 - 49	29			1.78	459	16.5	5.6 - 8.5 - 14.7
		400	1111	.087	21 - 32 - 52	33			2.03	524	21.6	6.4 - 9.7 - 15.8
		500	1389	.135	27 - 40 - 58	39			2.54	655	33.7	8.1 - 12.1 - 17.6
20" x 22"	3.056	100	306	.005	3 - 7 - 17	-	508 x 559	0.284	0.51	144	1.3	1.0 - 2.1 - 5.1
		150	458	.012	7 - 13 - 25	-			0.76	216	3.0	2.1 - 3.8 - 7.6
		200	611	.022	11 - 17 - 33	12			1.02	288	5.4	3.4 - 5.1 - 10.1
		250	764	.034	14 - 21 - 42	19			1.27	361	8.4	4.2 - 6.3 - 12.7
		300	917	.049	17 - 25 - 47	24			1.52	433	12.1	5.1 - 7.6 - 14.3
		350	1069	.066	19 - 29 - 51	29			1.78	505	16.5	5.9 - 8.9 - 15.5
		400	1222	.087	22 - 33 - 54	33			2.03	577	21.6	6.8 - 10.1 - 16.5
		500	1528	.135	28 - 42 - 61	40			2.54	721	33.7	8.5 - 12.7 - 18.5
22" x 22"	3.361	100	336	.005	3 - 7 - 18	-	559 x 559	0.312	0.51	159	1.3	1.0 - 2.2 - 5.3
		150	504	.012	7 - 13 - 26	-			0.76	238	3.0	2.2 - 4.0 - 8.0
		200	672	.022	12 - 18 - 35	13			1.02	317	5.4	3.5 - 5.3 - 10.6
		250	840	.034	15 - 22 - 44	19			1.27	397	8.4	4.4 - 6.7 - 13.3
		300	1008	.049	18 - 26 - 49	25			1.52	476	12.1	5.3 - 8.0 - 15.0
		350	1176	.066	20 - 31 - 53	29			1.78	555	16.5	6.2 - 9.3 - 16.2
		400	1344	.087	23 - 35 - 57	33			2.03	635	21.6	7.1 - 10.6 - 17.3
		500	1681	.135	29 - 44 - 64	40			2.54	793	33.7	8.9 - 13.3 - 19.4
22" x 22"	3.361	100	336	.005	3 - 7 - 18	-	559 x 559	0.312	0.51	159	1.3	1.0 - 2.2 - 5.3
		150	504	.012	7 - 13 - 26	-			0.76	238	3.0	2.2 - 4.0 - 8.0
		200	672	.022	12 - 18 - 35	13			1.02	317	5.4	3.5 - 5.3 - 10.6
		250	840	.034	15 - 22 - 44	19			1.27	397	8.4	4.4 - 6.7 - 13.3
		300	1008	.049	18 - 26 - 49	25			1.52	476	12.1	5.3 - 8.0 - 15.0
		350	1176	.066	20 - 31 - 53	29			1.78	555	16.5	6.2 - 9.3 - 16.2
		400	1344	.087	23 - 35 - 57	33			2.03	635	21.6	7.1 - 10.6 - 17.3
		500	1681	.135	29 - 44 - 64	40			2.54	793	33.7	8.9 - 13.3 - 19.4

NOTES: Throw values are given for isothermal conditions and terminal velocities of 150, 100, and 50 FPM (0.75, 0.50, and 0.25 m/s). NC values are based on octave band 2 - 7 sound power levels minus a room absorption of 10dB, re 10⁻¹² Watts. Dash in space denotes a NC value of less than 10. Data was obtained from tests conducted in accordance with ANSI/ASHRAE Standard 70, ISO Standard 5219, and ISO Standard 3741. See Krueger's selection program for performance data not shown, including octave band data.

13SD Performance Data: Horizontal Throw

IP/METRIC DATA: 13SD (NO DAMPER)

IP Data							Metric Data						
Nom Duct	Duct Area	Neck Vel	Air Flow	Pt	Throw	NC	Nom Duct	Duct Area	Neck Vel	Air Flow	Pt	Throw	
in	ft²	FPM	CFM	"WG	ft		mm	m²	m/s	L/s	Pa	m	
24" x 24"	4.000	100	400	.005	4 - 8 - 19	-	610 x 610	0.372	0.51	189	1.3	1.1 - 2.4 - 5.8	
		150	600	.012	8 - 14 - 29	-			0.76	283	3.0	2.4 - 4.4 - 8.7	
		200	800	.022	13 - 19 - 38	14			1.02	378	5.4	3.9 - 5.8 - 11.6	
		250	1000	.034	16 - 24 - 48	20			1.27	472	8.4	4.8 - 7.3 - 14.5	
		300	1200	.049	19 - 29 - 54	26			1.52	566	12.1	5.8 - 8.7 - 16.4	
		350	1400	.066	22 - 33 - 58	30			1.78	661	16.5	6.8 - 10.2 - 17.7	
		400	1600	.087	25 - 38 - 62	34			2.03	755	21.6	7.7 - 11.6 - 18.9	
		500	2000	.135	32 - 48 - 70	41			2.54	944	33.7	9.7 - 14.5 - 21.1	
26" x 26"	4.694	600	2400	.195	38 - 54 - 76	46	660 x 660	0.436	3.05	1133	48.5	11.6 - 16.4 - 23.2	
		100	469	.005	4 - 9 - 21	-			0.51	222	1.3	1.2 - 2.7 - 6.3	
		150	704	.012	9 - 16 - 31	-			0.76	332	3.0	2.7 - 4.7 - 9.4	
		200	939	.022	14 - 21 - 41	14			1.02	443	5.4	4.2 - 6.3 - 12.6	
		250	1174	.034	17 - 26 - 52	21			1.27	554	8.4	5.2 - 7.9 - 15.7	
		300	1408	.049	21 - 31 - 58	26			1.52	665	12.1	6.3 - 9.4 - 17.7	
		350	1643	.066	24 - 36 - 63	31			1.78	775	16.5	7.3 - 11.0 - 19.2	
		400	1878	.087	28 - 41 - 67	35			2.03	886	21.6	8.4 - 12.6 - 20.5	
28" x 28"	5.444	500	2347	.135	34 - 52 - 75	42	711 x 711	0.506	2.54	1108	33.7	10.5 - 15.7 - 22.9	
		600	2817	.195	41 - 58 - 83	47			3.05	1329	48.5	12.6 - 17.7 - 25.1	
		100	544	.005	4 - 9 - 22	-			0.51	257	1.3	1.3 - 2.9 - 6.8	
		150	817	.012	9 - 17 - 33	-			0.76	385	3.0	2.9 - 5.1 - 10.2	
		200	1089	.022	15 - 22 - 45	15			1.02	514	5.4	4.5 - 6.8 - 13.5	
		250	1361	.034	19 - 28 - 56	22			1.27	642	8.4	5.6 - 8.5 - 16.9	
		300	1633	.049	22 - 33 - 63	27			1.52	771	12.1	6.8 - 10.2 - 19.1	
		350	1906	.066	26 - 39 - 68	32			1.78	899	16.5	7.9 - 11.9 - 20.6	
30" x 30"	6.250	400	2178	.087	30 - 45 - 73	36	762 x 762	0.581	2.03	1028	21.6	9.0 - 13.5 - 22.1	
		500	2722	.135	37 - 56 - 81	42			2.54	1285	33.7	11.3 - 16.9 - 24.7	
		600	3267	.195	45 - 63 - 89	48			3.05	1542	48.5	13.5 - 19.1 - 27.0	
		100	625	.005	4 - 10 - 24	-			0.51	295	1.3	1.4 - 3.1 - 7.3	
		150	938	.012	10 - 18 - 36	-			0.76	442	3.0	3.1 - 5.4 - 10.9	
		200	1250	.022	16 - 24 - 48	15			1.02	590	5.4	4.8 - 7.3 - 14.5	
		250	1563	.034	20 - 30 - 60	22			1.27	737	8.4	6.0 - 9.1 - 18.1	
		300	1875	.049	24 - 36 - 67	28			1.52	885	12.1	7.3 - 10.9 - 20.5	
		350	2188	.066	28 - 42 - 73	32			1.78	1032	16.5	8.5 - 12.7 - 22.1	
		400	2500	.087	32 - 48 - 78	36			2.03	1180	21.6	9.7 - 14.5 - 23.6	
		500	3125	.135	40 - 60 - 87	43			2.54	1475	33.7	12.1 - 18.1 - 26.4	
		600	3750	.195	48 - 67 - 95	48			3.05	1770	48.5	14.5 - 20.5 - 29.0	

NOTES: Throw values are given for isothermal conditions and terminal velocities of 150, 100, and 50 FPM (0.75, 0.50, and 0.25 m/s). NC values are based on octave band 2 - 7 sound power levels minus a room absorption of 10dB, re 10⁻¹² Watts. Dash in space denotes a NC value of less than 10. Data was obtained from tests conducted in accordance with ANSI/ASHRAE Standard 70, ISO Standard 5219, and ISO Standard 3741. See Krueger's selection program for performance data not shown, including octave band data.

13SD Suggested Specification & Configuration

1. SERIES: (XXXX)

13SD - Steel Suicide Deterrent Security Supply Grille

2. WIDTH: (XX)

6" - 30" in 2" Increments or 9" *

3. HEIGHT: (XX)

4" - 30" in 2" Increments or 9" *

4. SLEEVE LENGTH: (XX)

6", 8", 10", 12", 14", 16", or 18"

5. DAMPER: (XX)

00 - No Damper

3R - Rear Operated Steel OBD **

6. ACCESSORIES: (XX) (XX)

00 - No Accessories

0L - Angle Frame Shipped Unpainted and Loose for Field Installation

01 - Security Bars, 3/4" Diameter Round Steel Bar on 6" Centers

02 - Anchor Bars, 3/4" Diameter x 3" Long

07 - Two Loose Angles, Shipped Separately for Field Installation

7. FINISH: (XX)

01 - Mill

44 - British White

* If selecting 9" width, height must also be 9".

** Damper welded in sleeve.

13SD

The suicide deterrent maximum security grille shall be a Krueger model 13SD. The face of the suicide deterrent maximum security grille shall have 3/16" diameter holes on 9/32" staggered centers with 40% free area and be constructed of 3/16" thick steel. The sleeve shall be 3/16" thick and stitch welded to the face of the maximum security grille and along the entire length of the sleeve.

PERFORMANCE

The manufacturer shall provide published (printed or electronic) performance data for the diffuser. Performance data shall include 2 - 7 octave band sound power levels. The diffuser shall be tested in accordance to the data standards at the time of product introduction or ANSI/ASHRAE Standard 70.

FINISH

The paint finish shall be #44 British White and be an anodic acrylic paint, baked at 315°F for 30 minutes. The paint thickness shall be 0.8 – 1.0 mils, gloss at 60° per ASTM D523-89 of 50 – 85%, pencil hardness per ASTM D3363-92A of HB – H, crosshatch adhesion per ASTM D3359-83 of 4B – 5B, impact per ASTM D2794-93 of direct impact >100 in/lb and reverse impact >80 in/lb, salt spray per ASTM B117-9048 of 96 hours, humidity per ASTM D2247-92 of >500 hours and water soak per ASTM D870-92 of 250 hours.