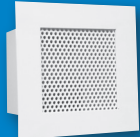




**1310, 1310TF & 51310**  
These perforated face supply grilles feature 5/16" diameter holes on 7/16" staggered centers.



**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.



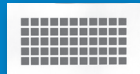
**1330**  
This louvered face supply grille features a wire mesh between the mullion and mesh guard. Blades set horizontally at 40°.



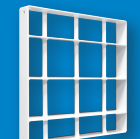
**1340**  
This lattice face with louvered core supply diffuser features 13/16" square holes and 3/16" fret.



**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.

**1310, 1310TF, 51310**

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**13SD**

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**1320**

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**1330**

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**1340**

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**51350**

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**1380L, 51380L, 1380P, 51380P**

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**1390**

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**1390F**

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**Security Grille Accessories**

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## Introduction: 51350

The 51350 series minimum security grilles feature heavy duty aluminum bars fixed at 0° with an extruded aluminum frame. This design allows for a secure area in a humid environment without the confining appearance of other security grilles. The aluminum fixed bars are reinforced by aluminum tubes utilizing mandrel construction, insuring the aluminum bars are not removable from the grille.

### MODEL

51350 - Minimum security aluminum grille with fixed 3/16" x 3/4" blades set at 0° on 1/2" centers.

### FEATURES

- Extruded aluminum frame.
- 5/16" Diameter tube is expanded to lock blades in place and reinforced full length by 1/4" diameter aluminum rod.
- 1/8" Thick aluminum stitch welded sleeve.
- 30"x30" Maximum single unit size.
- 6", 8", 10", 12", 14", 16", and 18" Sleeve lengths or no sleeve.

### ACCESSORIES

- Unpainted aluminum angle frame shipped loose for field installation, constructed of 1 1/2"x1 1/2"x1/8" angle.
- Aluminum 1/2" diameter security bars on 6" centers.
- Aluminum 3"x1/2" diameter anchor bars.
- Two unpainted loose aluminum angles shipped loose for field installation, constructed of 1 1/2"x1 1/2"x1/8" angle.
- Front or rear operated OBD.

### FINISHES

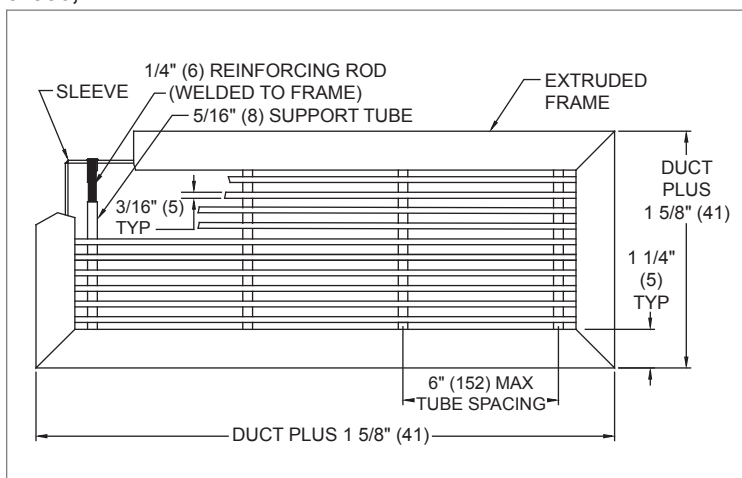
- Standard finish is #44 British White.
- Optional finish is Mill.



51350

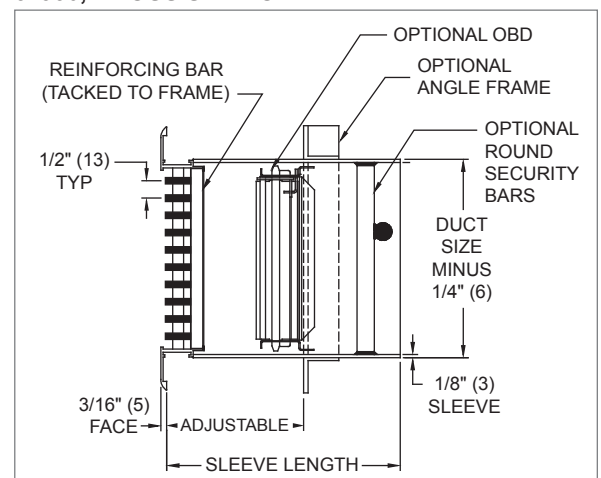
## 51350 Dimensional Information

### 51350, FACE VIEW



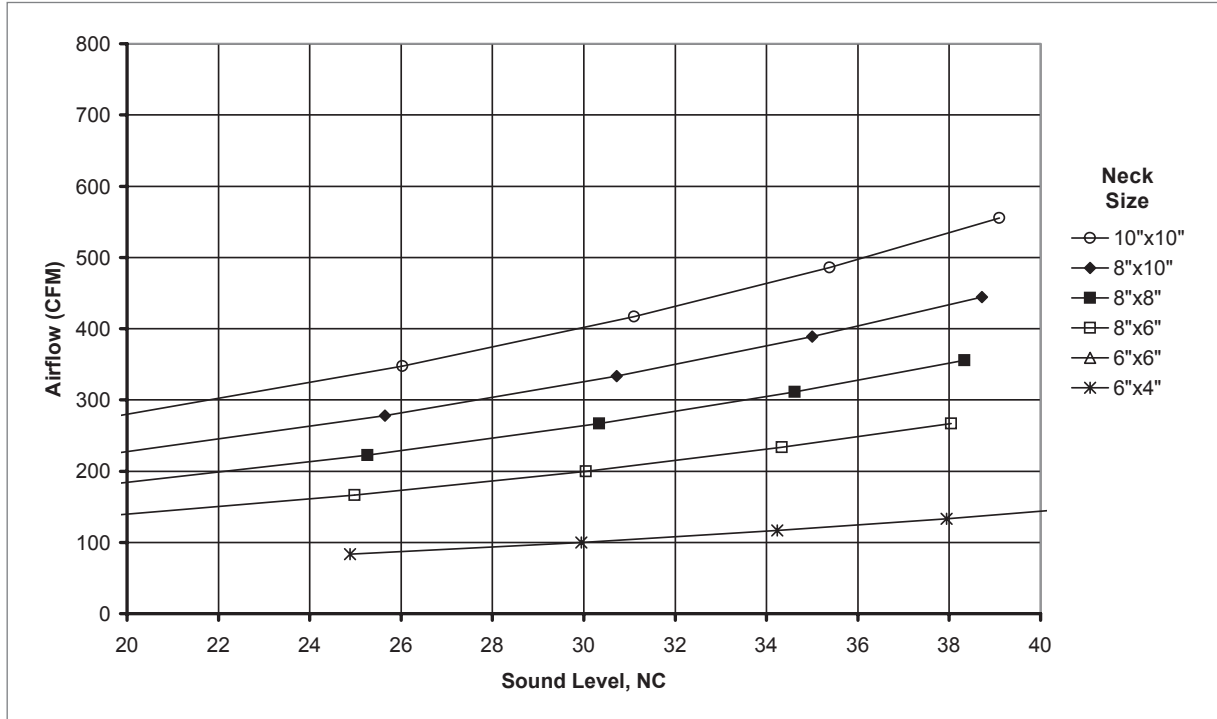
NOTE: Dimensions in parentheses are mm.

### 51350, CROSS SECTION

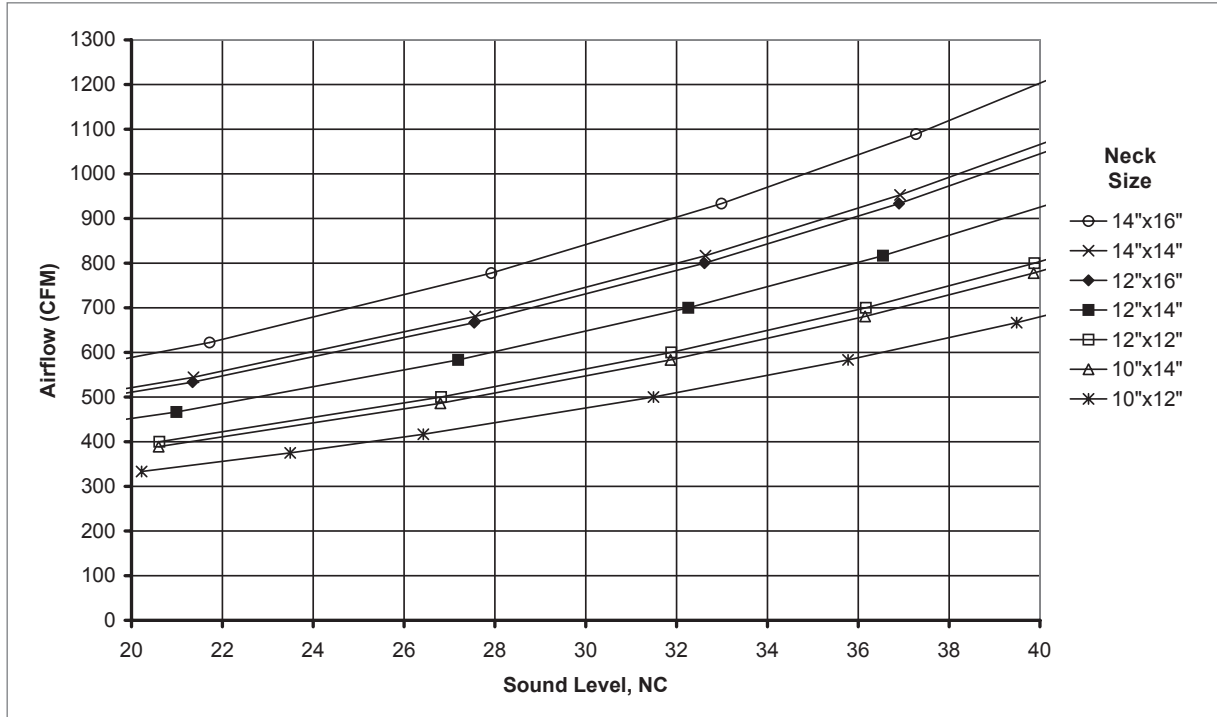


**51350 Reference Charts**

**AIRFLOW VS. NC LEVEL: 51350 (NO DAMPER)**

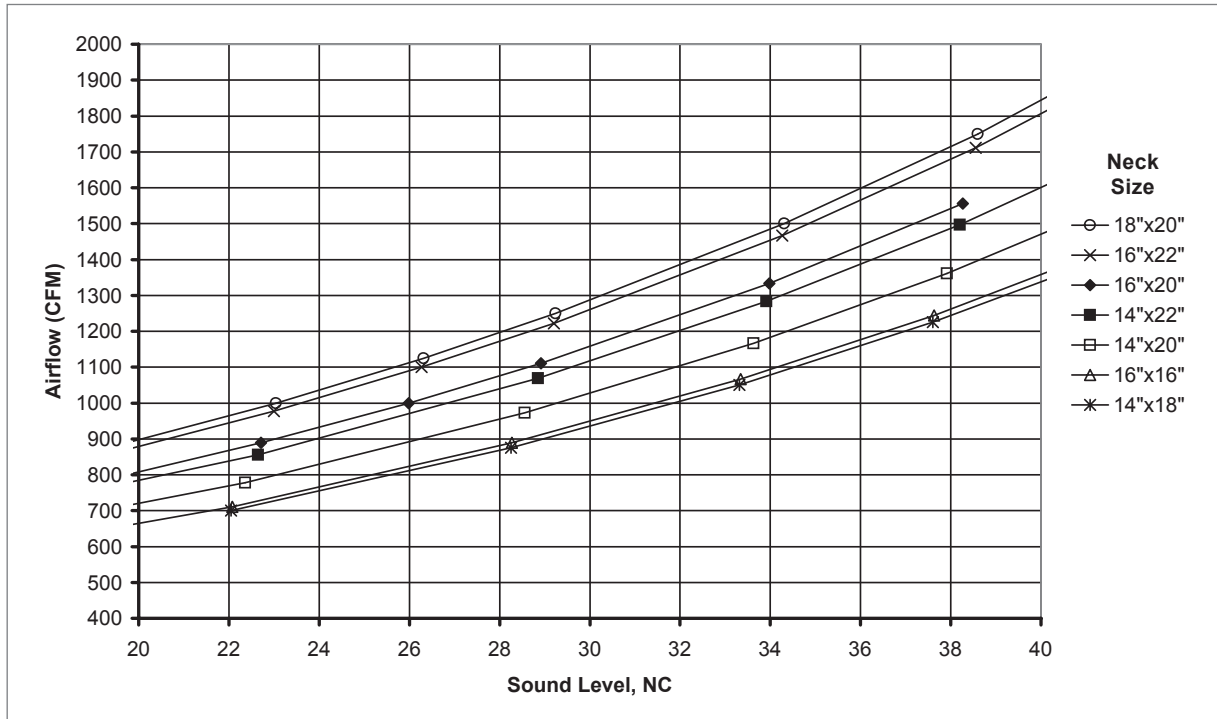
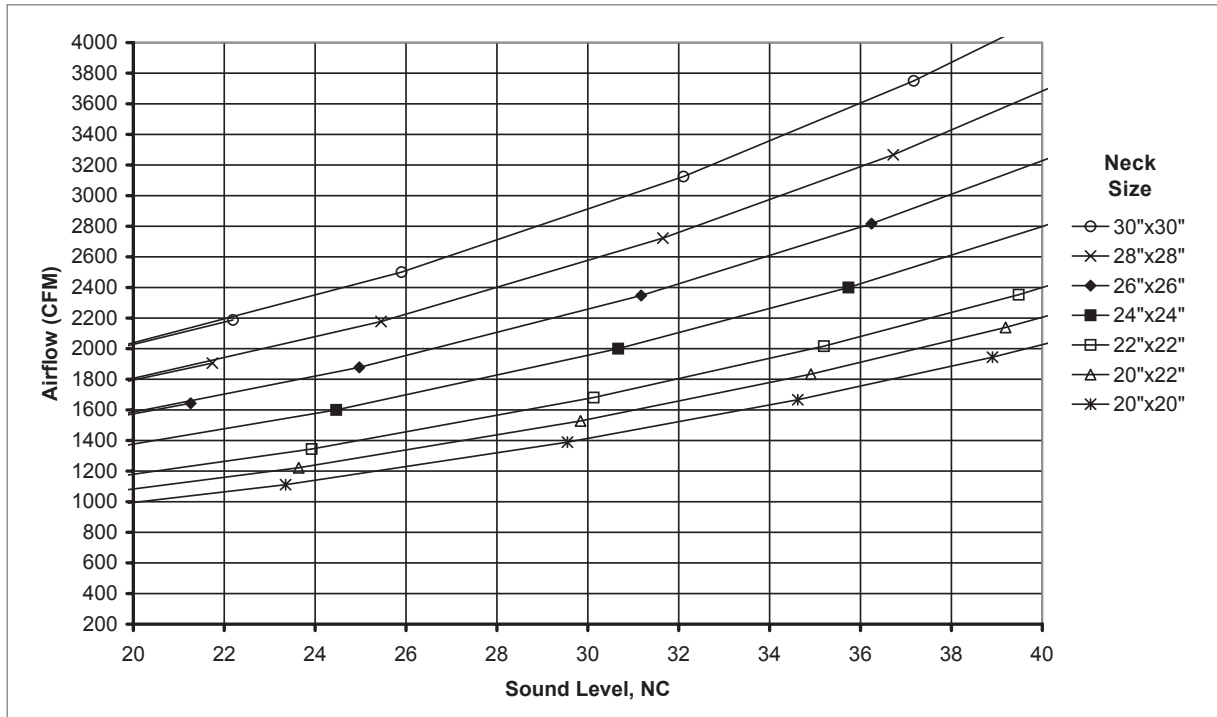


**AIRFLOW VS. NC LEVEL: 51350 (NO DAMPER)**



SECURITY GRILLES

51350

**51350 Reference Charts**
**AIRFLOW VS. NC LEVEL: 51350 (NO DAMPER)**

**AIRFLOW VS. NC LEVEL: 51350 (NO DAMPER)**


**51350 Performance Data: Horizontal Throw**

IP/METRIC DATA: 51350 (NO DAMPER)

SECURITY GRILLES

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"	0.17	200	33	.036	4 - 7 - 11	-	152 x 102	0.02	1.02	16	8.9	1.3 - 2.0 - 3.2
		300	50	.080	7 - 9 - 13	11			1.52	24	19.9	2.0 - 2.8 - 4.0
		400	67	.142	9 - 11 - 15	19			2.03	31	35.4	2.6 - 3.2 - 4.6
		450	75	.180	9 - 11 - 16	22			2.29	35	44.8	2.8 - 3.4 - 4.8
		500	83	.222	10 - 12 - 17	25			2.54	39	55.3	2.9 - 3.6 - 5.1
		600	100	.320	11 - 13 - 18	30			3.05	47	79.7	3.2 - 4.0 - 5.6
		700	117	.436	11 - 14 - 20	34			3.56	55	108.4	3.5 - 4.3 - 6.0
		800	133	.569	12 - 15 - 21	38			4.06	63	141.6	3.7 - 4.6 - 6.5
		900	150	.720	13 - 16 - 23	41	4.57	71	179.3	4.0 - 4.8 - 6.8		
6" x 6"	0.25	100	25	.008	1 - 3 - 8	-	152 x 152	0.02	0.51	12	1.9	0.3 - 0.8 - 2.4
		200	50	.031	5 - 8 - 13	-			1.02	24	7.6	1.4 - 2.4 - 4.0
		250	63	.048	7 - 10 - 15	-			1.27	29	11.9	2.0 - 3.0 - 4.4
		300	75	.069	8 - 11 - 16	-			1.52	35	17.2	2.4 - 3.4 - 4.8
		400	100	.123	10 - 13 - 18	18			2.03	47	30.5	3.2 - 4.0 - 5.6
		500	125	.192	12 - 15 - 21	25			2.54	59	47.7	3.6 - 4.4 - 6.2
		600	150	.276	13 - 16 - 23	30			3.05	71	68.7	4.0 - 4.8 - 6.8
		700	175	.376	14 - 17 - 24	34			3.56	83	93.5	4.3 - 5.2 - 7.4
		900	225	.621	16 - 20 - 28	41	4.57	106	154.6	4.8 - 5.9 - 8.4		
8" x 6"	0.33	100	33	.007	1 - 3 - 9	-	203 x 152	0.03	0.51	16	1.8	0.4 - 0.9 - 2.7
		200	67	.029	5 - 9 - 15	-			1.02	31	7.1	1.5 - 2.7 - 4.6
		250	83	.045	7 - 11 - 17	-			1.27	39	11.1	2.2 - 3.4 - 5.1
		300	100	.064	9 - 13 - 18	11			1.52	47	16.0	2.7 - 4.0 - 5.6
		400	133	.114	12 - 15 - 21	19			2.03	63	28.5	3.6 - 4.6 - 6.5
		500	167	.179	14 - 17 - 24	25			2.54	79	44.5	4.2 - 5.1 - 7.2
		600	200	.257	15 - 18 - 26	30			3.05	94	64.0	4.6 - 5.6 - 7.9
		700	233	.350	16 - 20 - 28	34			3.56	110	87.2	4.9 - 6.0 - 8.5
		800	267	.457	17 - 21 - 30	38	4.06	126	113.9	5.3 - 6.5 - 9.1		
8" x 8"	0.44	100	44	.007	1 - 3 - 10	-	203 x 203	0.04	0.51	21	1.7	0.4 - 0.9 - 3.1
		200	89	.027	6 - 10 - 17	-			1.02	42	6.6	1.7 - 3.1 - 5.3
		250	111	.042	8 - 13 - 19	-			1.27	52	10.4	2.5 - 3.8 - 5.9
		300	133	.060	10 - 15 - 21	11			1.52	63	14.9	3.1 - 4.6 - 6.5
		400	178	.107	13 - 17 - 25	19			2.03	84	26.5	4.1 - 5.3 - 7.5
		500	222	.167	16 - 19 - 27	25			2.54	105	41.5	4.8 - 5.9 - 8.3
		600	267	.240	17 - 21 - 30	30			3.05	126	59.7	5.3 - 6.5 - 9.1
		700	311	.326	19 - 23 - 32	35			3.56	147	81.3	5.7 - 7.0 - 9.9
		800	356	.426	20 - 25 - 35	38	4.06	168	106.1	6.1 - 7.5 - 10.5		
8" x 10"	0.56	100	56	.006	1 - 3 - 11	-	203 x 254	0.05	0.51	26	1.6	0.5 - 1.0 - 3.4
		200	111	.026	6 - 11 - 19	-			1.02	52	6.4	1.8 - 3.4 - 5.9
		300	167	.058	11 - 17 - 24	11			1.52	79	14.3	3.4 - 5.1 - 7.2
		400	222	.102	15 - 19 - 27	19			2.03	105	25.5	4.5 - 5.9 - 8.3
		500	278	.160	18 - 22 - 31	26			2.54	131	39.8	5.4 - 6.6 - 9.3
		600	333	.230	19 - 24 - 34	31			3.05	157	57.3	5.9 - 7.2 - 10.2
		700	389	.313	21 - 26 - 36	35			3.56	184	78.0	6.4 - 7.8 - 11.0
		800	444	.409	22 - 27 - 39	39			4.06	210	101.9	6.8 - 8.3 - 11.8
		900	500	.518	24 - 29 - 41	42	4.57	236	128.9	7.2 - 8.8 - 12.5		
10" x 10"	0.69	100	69	.006	2 - 4 - 12	-	254 x 254	0.06	0.51	33	1.5	0.5 - 1.1 - 3.7
		200	139	.025	6 - 12 - 22	-			1.02	66	6.1	2.0 - 3.7 - 6.6
		300	208	.055	12 - 18 - 27	12			1.52	98	13.8	3.7 - 5.6 - 8.1
		350	243	.075	14 - 20 - 29	16			1.78	115	18.7	4.4 - 6.2 - 8.7
		400	278	.098	16 - 22 - 31	20			2.03	131	24.4	5.0 - 6.6 - 9.3
		500	347	.153	20 - 24 - 34	26			2.54	164	38.2	6.0 - 7.4 - 10.4
		600	417	.221	22 - 27 - 38	31			3.05	197	55.0	6.6 - 8.1 - 11.4
		700	486	.301	23 - 29 - 41	35			3.56	229	74.9	7.1 - 8.7 - 12.3
		800	556	.393	25 - 31 - 43	39	4.06	262	97.8	7.6 - 9.3 - 13.2		

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<sup>-12</sup> 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.

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**51350 Performance Data: Horizontal Throw**
**IP/METRIC DATA: 51350 (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
10" x 12"	0.83	200	167	.024	7 - 13 - 24	-	254 x 305	0.08	1.02	79	6.0	2.1 - 4.1 - 7.2
		300	250	.054	13 - 20 - 29	12			1.52	118	13.4	4.1 - 6.1 - 8.8
		400	333	.096	18 - 24 - 34	20			2.03	157	23.8	5.4 - 7.2 - 10.2
		450	375	.121	20 - 25 - 36	23			2.29	177	30.1	6.1 - 7.7 - 10.8
		500	417	.149	22 - 27 - 38	26			2.54	197	37.2	6.6 - 8.1 - 11.4
		600	500	.215	24 - 29 - 41	31			3.05	236	53.6	7.2 - 8.8 - 12.5
		700	583	.293	26 - 31 - 44	36			3.56	275	72.9	7.8 - 9.5 - 13.5
		800	667	.382	27 - 34 - 47	39			4.06	315	95.2	8.3 - 10.2 - 14.4
		900	750	.484	29 - 36 - 50	43			4.57	354	120.5	8.8 - 10.8 - 15.3
10" x 14"	0.97	200	194	.017	7 - 14 - 26	-	254 x 356	0.09	1.02	92	4.3	2.3 - 4.4 - 7.8
		250	243	.027	12 - 18 - 29	-			1.27	115	6.6	3.5 - 5.5 - 8.7
		300	292	.038	14 - 22 - 31	13			1.52	138	9.6	4.4 - 6.6 - 9.5
		400	389	.068	19 - 26 - 36	21			2.03	184	17.0	5.8 - 7.8 - 11.0
		500	486	.107	23 - 29 - 41	27			2.54	229	26.6	7.1 - 8.7 - 12.3
		600	583	.154	26 - 31 - 44	32			3.05	275	38.3	7.8 - 9.5 - 13.5
		700	681	.209	28 - 34 - 48	36			3.56	321	52.1	8.4 - 10.3 - 14.6
		800	778	.273	30 - 36 - 51	40			4.06	367	68.1	9.0 - 11.0 - 15.6
		900	875	.346	31 - 38 - 54	43			4.57	413	86.1	9.5 - 11.7 - 16.5
12" x 12"	1.00	200	200	.017	7 - 15 - 26	-	305 x 305	0.09	1.02	94	4.3	2.3 - 4.4 - 7.9
		250	250	.027	12 - 18 - 29	-			1.27	118	6.6	3.5 - 5.5 - 8.8
		300	300	.038	15 - 22 - 32	13			1.52	142	9.6	4.4 - 6.7 - 9.7
		400	400	.068	19 - 26 - 37	21			2.03	189	17.0	5.9 - 7.9 - 11.2
		500	500	.107	24 - 29 - 41	27			2.54	236	26.6	7.2 - 8.8 - 12.5
		600	600	.154	26 - 32 - 45	32			3.05	283	38.3	7.9 - 9.7 - 13.7
		700	700	.209	28 - 34 - 49	36			3.56	330	52.1	8.5 - 10.5 - 14.8
		800	800	.273	30 - 37 - 52	40			4.06	378	68.1	9.1 - 11.2 - 15.8
		900	900	.346	32 - 39 - 55	43			4.57	425	86.1	9.7 - 11.9 - 16.8
12" x 14"	1.17	100	117	.004	2 - 4 - 16	-	305 x 356	0.11	0.51	55	1.1	0.6 - 1.4 - 4.8
		200	233	.017	8 - 16 - 28	-			1.02	110	4.3	2.4 - 4.8 - 8.5
		250	292	.027	12 - 20 - 31	-			1.27	138	6.6	3.8 - 6.0 - 9.5
		300	350	.038	16 - 24 - 34	13			1.52	165	9.6	4.8 - 7.2 - 10.5
		400	467	.068	21 - 28 - 40	21			2.03	220	17.0	6.4 - 8.5 - 12.1
		500	583	.107	26 - 31 - 44	27			2.54	275	26.6	7.8 - 9.5 - 13.5
		600	700	.154	28 - 34 - 49	32			3.05	330	38.3	8.5 - 10.5 - 14.8
		700	817	.209	30 - 37 - 53	37			3.56	385	52.1	9.2 - 11.3 - 16.0
		800	933	.273	32 - 40 - 56	40			4.06	440	68.1	9.9 - 12.1 - 17.1
12" x 16"	1.33	100	133	.004	2 - 5 - 17	-	305 x 406	0.12	0.51	63	1.1	0.6 - 1.4 - 5.1
		200	267	.017	8 - 17 - 30	-			1.02	126	4.3	2.6 - 5.1 - 9.1
		250	333	.027	13 - 21 - 34	-			1.27	157	6.6	4.0 - 6.4 - 10.2
		300	400	.038	17 - 25 - 37	13			1.52	189	9.6	5.1 - 7.6 - 11.2
		400	533	.068	22 - 30 - 42	21			2.03	252	17.0	6.8 - 9.1 - 12.9
		500	667	.107	27 - 34 - 47	28			2.54	315	26.6	8.3 - 10.2 - 14.4
		600	800	.154	30 - 37 - 52	33			3.05	378	38.3	9.1 - 11.2 - 15.8
		700	933	.209	32 - 40 - 56	37			3.56	440	52.1	9.9 - 12.1 - 17.1
		800	1067	.273	35 - 42 - 60	41			4.06	503	68.1	10.5 - 12.9 - 18.3
14" x 14"	1.36	100	136	.004	2 - 5 - 17	-	356 x 356	0.13	0.51	64	1.1	0.6 - 1.4 - 5.1
		200	272	.017	8 - 17 - 30	-			1.02	128	4.3	2.6 - 5.1 - 9.2
		250	340	.027	13 - 21 - 34	-			1.27	161	6.6	4.0 - 6.4 - 10.3
		300	408	.038	17 - 25 - 37	13			1.52	193	9.6	5.1 - 7.7 - 11.3
		400	544	.068	22 - 30 - 43	21			2.03	257	17.0	6.8 - 9.2 - 13.0
		500	681	.107	28 - 34 - 48	28			2.54	321	26.6	8.4 - 10.3 - 14.6
		600	817	.154	30 - 37 - 53	33			3.05	385	38.3	9.2 - 11.3 - 16.0
		700	953	.209	33 - 40 - 57	37			3.56	450	52.1	10.0 - 12.2 - 17.3
		800	1089	.273	35 - 43 - 61	41			4.06	514	68.1	10.6 - 13.0 - 18.4

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<sup>-12</sup> 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.



**51350 Performance Data: Horizontal Throw**

IP/METRIC DATA: 51350 (NO DAMPER)

SECURITY GRILLES

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 16"	1.56	100	156	.004	2 - 5 - 18	-	356 x 406	0.14	0.51	73	1.1	0.7 - 1.5 - 5.5
		200	311	.017	9 - 18 - 32	-			1.02	147	4.3	2.7 - 5.5 - 9.9
		250	389	.027	14 - 22 - 36	-			1.27	184	6.6	4.3 - 6.8 - 11.0
		300	467	.038	18 - 27 - 40	14			1.52	220	9.6	5.5 - 8.2 - 12.1
		400	622	.068	24 - 32 - 46	22			2.03	294	17.0	7.3 - 9.9 - 13.9
		500	778	.107	30 - 36 - 51	28			2.54	367	26.6	9.0 - 11.0 - 15.6
		600	933	.154	32 - 40 - 56	33			3.05	440	38.3	9.9 - 12.1 - 17.1
		700	1089	.209	35 - 43 - 61	37			3.56	514	52.1	10.6 - 13.0 - 18.4
800	1244	.273	37 - 46 - 65	41	4.06	587	68.1	11.4 - 13.9 - 19.7				
14" x 18"	1.75	100	175	.005	2 - 5 - 19	-	356 x 457	0.16	0.51	83	1.4	0.7 - 1.6 - 5.8
		200	350	.022	9 - 19 - 34	-			1.02	165	5.4	2.9 - 5.8 - 10.5
		250	438	.034	15 - 24 - 38	-			1.27	206	8.5	4.5 - 7.2 - 11.7
		300	525	.049	19 - 29 - 42	14			1.52	248	12.2	5.8 - 8.7 - 12.8
		400	700	.087	25 - 34 - 49	22			2.03	330	21.8	7.7 - 10.5 - 14.8
		500	875	.137	31 - 38 - 54	28			2.54	413	34.0	9.5 - 11.7 - 16.5
		600	1050	.197	34 - 42 - 60	33			3.05	496	49.0	10.5 - 12.8 - 18.1
		700	1225	.268	37 - 46 - 64	38			3.56	578	66.6	11.3 - 13.8 - 19.6
800	1400	.350	40 - 49 - 69	41	4.06	661	87.0	12.1 - 14.8 - 20.9				
16" x 16"	1.78	100	178	.004	2 - 5 - 19	-	406 x 406	0.17	0.51	84	1.1	0.7 - 1.6 - 5.8
		200	356	.017	9 - 19 - 35	-			1.02	168	4.3	2.9 - 5.8 - 10.5
		250	444	.027	15 - 24 - 39	-			1.27	210	6.6	4.5 - 7.3 - 11.8
		300	533	.038	19 - 29 - 42	14			1.52	252	9.6	5.8 - 8.7 - 12.9
		400	711	.068	26 - 35 - 49	22			2.03	336	17.0	7.8 - 10.5 - 14.9
		500	889	.107	32 - 39 - 55	28			2.54	420	26.6	9.6 - 11.8 - 16.7
		600	1067	.154	35 - 42 - 60	33			3.05	503	38.3	10.5 - 12.9 - 18.3
		700	1244	.209	37 - 46 - 65	38			3.56	587	52.1	11.4 - 13.9 - 19.7
800	1422	.273	40 - 49 - 69	41	4.06	671	68.1	12.2 - 14.9 - 21.1				
14" x 20"	1.94	100	194	.004	2 - 6 - 20	-	356 x 508	0.18	0.51	92	1.1	0.8 - 1.7 - 6.1
		200	389	.017	10 - 20 - 36	-			1.02	184	4.3	3.0 - 6.1 - 11.0
		250	486	.027	15 - 25 - 41	-			1.27	229	6.6	4.7 - 7.6 - 12.3
		300	583	.038	20 - 30 - 44	14			1.52	275	9.6	6.1 - 9.1 - 13.5
		400	778	.068	27 - 36 - 51	22			2.03	367	17.0	8.1 - 11.0 - 15.6
		500	972	.107	33 - 41 - 57	29			2.54	459	26.6	10.1 - 12.3 - 17.4
		600	1167	.154	36 - 44 - 63	34			3.05	551	38.3	11.0 - 13.5 - 19.1
		700	1361	.209	39 - 48 - 68	38			3.56	642	52.1	11.9 - 14.6 - 20.6
800	1556	.273	42 - 51 - 73	42	4.06	734	68.1	12.7 - 15.6 - 22.0				
14" x 22"	2.14	100	214	.004	3 - 6 - 21	-	356 x 559	0.20	0.51	101	1.1	0.8 - 1.8 - 6.4
		200	428	.017	10 - 21 - 38	-			1.02	202	4.3	3.1 - 6.4 - 11.6
		250	535	.027	16 - 26 - 43	-			1.27	252	6.6	4.9 - 8.0 - 12.9
		300	642	.038	21 - 31 - 47	15			1.52	303	9.6	6.4 - 9.5 - 14.2
		400	856	.068	28 - 38 - 54	23			2.03	404	17.0	8.5 - 11.6 - 16.3
		500	1069	.107	35 - 43 - 60	29			2.54	505	26.6	10.6 - 12.9 - 18.3
		600	1283	.154	38 - 47 - 66	34			3.05	606	38.3	11.6 - 14.2 - 20.0
		700	1497	.209	41 - 50 - 71	38			3.56	707	52.1	12.5 - 15.3 - 21.6
800	1711	.273	44 - 54 - 76	42	4.06	808	68.1	13.3 - 16.3 - 23.1				
16" x 20"	2.22	200	444	.017	10 - 21 - 39	-	406 x 508	0.21	1.02	210	4.3	3.2 - 6.5 - 11.8
		300	667	.038	21 - 32 - 47	15			1.52	315	9.6	6.5 - 9.7 - 14.4
		350	778	.052	25 - 36 - 51	19			1.78	367	13.0	7.6 - 11.0 - 15.6
		400	889	.068	28 - 39 - 55	23			2.03	420	17.0	8.6 - 11.8 - 16.7
		450	1000	.086	32 - 41 - 58	26			2.29	472	21.5	9.7 - 12.5 - 17.7
		500	1111	.107	35 - 43 - 61	29			2.54	524	26.6	10.8 - 13.2 - 18.6
		600	1333	.154	39 - 47 - 67	34			3.05	629	38.3	11.8 - 14.4 - 20.4
		700	1556	.209	42 - 51 - 73	38			3.56	734	52.1	12.7 - 15.6 - 22.0
800	1778	.273	45 - 55 - 78	42	4.06	839	68.1	13.6 - 16.7 - 23.6				

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<sup>-12</sup> 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.

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**51350 Performance Data: Horizontal Throw**

IP/METRIC DATA: 51350 (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
16" x 22"	2.44	200	489	.017	11 - 22 - 41	-	406 x 559	0.23	1.02	231	4.3	3.3 - 6.8 - 12.4
		300	733	.038	22 - 33 - 50	15			1.52	346	9.6	6.8 - 10.2 - 15.1
		350	856	.052	26 - 38 - 54	19			1.78	404	13.0	7.9 - 11.6 - 16.3
		400	978	.068	30 - 41 - 57	23			2.03	461	17.0	9.0 - 12.4 - 17.5
		450	1100	.086	33 - 43 - 61	26			2.29	519	21.5	10.2 - 13.1 - 18.5
		500	1222	.107	37 - 45 - 64	29			2.54	577	26.6	11.3 - 13.8 - 19.5
		600	1467	.154	41 - 50 - 70	34			3.05	692	38.3	12.4 - 15.1 - 21.4
		700	1711	.209	44 - 54 - 76	39			3.56	808	52.1	13.3 - 16.3 - 23.1
		800	1956	.273	47 - 57 - 81	42	4.06	923	68.1	14.3 - 17.5 - 24.7		
18" x 20"	2.50	200	500	.017	11 - 23 - 41	-	457 x 508	0.23	1.02	236	4.3	3.3 - 6.8 - 12.5
		300	750	.038	23 - 34 - 50	15			1.52	354	9.6	6.8 - 10.3 - 15.3
		350	875	.052	26 - 38 - 54	19			1.78	413	13.0	8.0 - 11.7 - 16.5
		400	1000	.068	30 - 41 - 58	23			2.03	472	17.0	9.1 - 12.5 - 17.7
		450	1125	.086	34 - 44 - 62	26			2.29	531	21.5	10.3 - 13.3 - 18.7
		500	1250	.107	38 - 46 - 65	29			2.54	590	26.6	11.4 - 14.0 - 19.8
		600	1500	.154	41 - 50 - 71	34			3.05	708	38.3	12.5 - 15.3 - 21.6
		700	1750	.209	44 - 54 - 77	39			3.56	826	52.1	13.5 - 16.5 - 23.4
		800	2000	.273	47 - 58 - 82	42	4.06	944	68.1	14.4 - 17.7 - 25.0		
20" x 20"	2.78	100	278	.005	3 - 6 - 24	-	508 x 508	0.26	0.51	131	1.3	0.9 - 2.0 - 7.2
		200	556	.021	12 - 24 - 43	-			1.02	262	5.2	3.5 - 7.2 - 13.2
		250	694	.033	18 - 30 - 48	-			1.27	328	8.1	5.5 - 9.0 - 14.7
		300	833	.047	24 - 36 - 53	15			1.52	393	11.7	7.2 - 10.8 - 16.1
		400	1111	.084	32 - 43 - 61	23			2.03	524	20.9	9.6 - 13.2 - 18.6
		500	1389	.131	39 - 48 - 69	30			2.54	655	32.6	12.0 - 14.7 - 20.8
		600	1667	.188	43 - 53 - 75	35			3.05	787	46.9	13.2 - 16.1 - 22.8
		700	1944	.256	47 - 57 - 81	39			3.56	918	63.9	14.2 - 17.4 - 24.6
		800	2222	.335	50 - 61 - 87	43	4.06	1049	83.4	15.2 - 18.6 - 26.3		
20" x 22"	3.06	100	306	.004	3 - 7 - 25	-	508 x 559	0.28	0.51	144	1.1	0.9 - 2.1 - 7.5
		200	611	.017	12 - 25 - 45	-			1.02	288	4.3	3.6 - 7.5 - 13.8
		250	764	.027	19 - 31 - 51	11			1.27	361	6.6	5.7 - 9.4 - 15.4
		300	917	.038	25 - 37 - 56	16			1.52	433	9.6	7.5 - 11.3 - 16.9
		400	1222	.068	33 - 45 - 64	24			2.03	577	17.0	10.1 - 13.8 - 19.5
		500	1528	.107	41 - 51 - 72	30			2.54	721	26.6	12.6 - 15.4 - 21.8
		600	1833	.154	45 - 56 - 79	35			3.05	865	38.3	13.8 - 16.9 - 23.9
		700	2139	.209	49 - 60 - 85	39			3.56	1009	52.1	14.9 - 18.3 - 25.8
		800	2444	.273	52 - 64 - 91	43	4.06	1154	68.1	16.0 - 19.5 - 27.6		
22" x 22"	3.36	100	336	.004	3 - 7 - 26	-	559 x 559	0.31	0.51	159	1.1	1.0 - 2.1 - 7.9
		200	672	.017	13 - 26 - 48	-			1.02	317	4.3	3.8 - 7.9 - 14.5
		250	840	.027	20 - 32 - 53	11			1.27	397	6.6	5.9 - 9.9 - 16.2
		300	1008	.038	26 - 39 - 58	16			1.52	476	9.6	7.9 - 11.8 - 17.7
		400	1344	.068	35 - 48 - 67	24			2.03	635	17.0	10.5 - 14.5 - 20.5
		500	1681	.107	43 - 53 - 75	30			2.54	793	26.6	13.2 - 16.2 - 22.9
		600	2017	.154	48 - 58 - 83	35			3.05	952	38.3	14.5 - 17.7 - 25.1
		700	2353	.209	51 - 63 - 89	39			3.56	1110	52.1	15.7 - 19.2 - 27.1
		800	2689	.273	55 - 67 - 95	43	4.06	1269	68.1	16.7 - 20.5 - 29.0		
24" x 24"	4.00	100	400	.004	3 - 8 - 28	-	610 x 610	0.37	0.51	189	1.1	1.0 - 2.3 - 8.6
		200	800	.017	14 - 28 - 52	-			1.02	378	4.3	4.1 - 8.6 - 15.8
		250	1000	.027	21 - 35 - 58	11			1.27	472	6.6	6.4 - 10.7 - 17.7
		300	1200	.038	28 - 42 - 64	16			1.52	566	9.6	8.6 - 12.9 - 19.4
		400	1600	.068	38 - 52 - 74	24			2.03	755	17.0	11.4 - 15.8 - 22.4
		500	2000	.107	47 - 58 - 82	31			2.54	944	26.6	14.3 - 17.7 - 25.0
		600	2400	.154	52 - 64 - 90	36			3.05	1133	38.3	15.8 - 19.4 - 27.4
		700	2800	.209	56 - 69 - 97	40			3.56	1321	52.1	17.1 - 20.9 - 29.6
		800	3200	.273	60 - 74 - 104	44	4.06	1510	68.1	18.3 - 22.4 - 31.6		

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<sup>-12</sup> 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.



**51350 Performance Data: Horizontal Throw**

IP/METRIC DATA: 51350 (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	ft <sup>2</sup>	FPM	CFM	"WG	ft		mm	m <sup>2</sup>	m/s	L/s	Pa	m
26" x 26"	4.69	100	469	.004	4 - 8 - 31	-	660 x 660	0.44	0.51	222	1.1	1.1 - 2.5 - 9.3
		200	939	.017	15 - 31 - 56	-			1.02	443	4.3	4.4 - 9.3 - 17.1
		300	1408	.038	31 - 46 - 69	17			1.52	665	9.6	9.3 - 13.9 - 21.0
		350	1643	.052	36 - 53 - 75	21			1.78	775	13.0	10.8 - 16.0 - 22.7
		400	1408	.038	31 - 46 - 69	17			1.52	665	9.6	9.3 - 13.9 - 21.0
		500	1878	.068	41 - 56 - 80	25			2.03	886	17.0	12.4 - 17.1 - 24.2
		600	2347	.107	51 - 63 - 89	31			2.54	1108	26.6	15.5 - 19.1 - 27.1
		700	2817	.154	56 - 69 - 98	36			3.05	1329	38.3	17.1 - 21.0 - 29.7
28" x 28"	5.44	100	544	.004	4 - 9 - 33	-	711 x 711	0.51	0.51	257	1.1	1.2 - 2.7 - 10.0
		200	1089	.017	16 - 33 - 61	-			1.02	514	4.3	4.7 - 10.0 - 18.4
		300	1633	.038	33 - 49 - 74	17			1.52	771	9.6	10.0 - 15.0 - 22.6
		350	1906	.052	38 - 57 - 80	22			1.78	899	13.0	11.6 - 17.3 - 24.4
		400	1633	.038	33 - 49 - 74	17			1.52	771	9.6	10.0 - 15.0 - 22.6
		500	2178	.068	44 - 61 - 86	25			2.03	1028	17.0	13.3 - 18.4 - 26.1
		600	2722	.107	55 - 68 - 96	32			2.54	1285	26.6	16.6 - 20.6 - 29.2
		700	3267	.154	61 - 74 - 105	37			3.05	1542	38.3	18.4 - 22.6 - 31.9
30" x 30"	6.25	100	625	.004	4 - 9 - 35	-	762 x 762	0.58	0.51	295	1.1	1.3 - 2.8 - 10.7
		200	1250	.017	17 - 35 - 65	-			1.02	590	4.3	5.0 - 10.7 - 19.8
		300	1875	.038	35 - 53 - 80	18			1.52	885	9.6	10.7 - 16.0 - 24.2
		350	2188	.052	41 - 61 - 86	22			1.78	1032	13.0	12.4 - 18.5 - 26.1
		400	1875	.038	35 - 53 - 80	18			1.52	885	9.6	10.7 - 16.0 - 24.2
		500	2500	.068	47 - 65 - 92	26			2.03	1180	17.0	14.2 - 19.8 - 27.9
		600	3125	.107	58 - 73 - 103	32			2.54	1475	26.6	17.8 - 22.1 - 31.2
		700	3750	.154	65 - 80 - 113	37			3.05	1770	38.3	19.8 - 24.2 - 34.2
30" x 30"	6.25	700	4375	.209	70 - 86 - 122	41	762 x 762	0.58	3.56	2065	52.1	21.3 - 26.1 - 37.0

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<sup>-12</sup> 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.

SECURITY GRILLES

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## 51350 Suggested Specification & Configuration

**1. SERIES: (XXXXX)**

51350 - Heavy Duty Aluminum Linear Bar Grille

**2. WIDTH: (XX)**

6" - 30" in 2" Increments

**3. HEIGHT: (XX)**

4" - 30" in 2" Increments

**4. SLEEVE LENGTH: (XX)**

00 - None

06 - 6"

08 - 8"

10 - 10"

12 - 12"

14 - 14"

16 - 16"

18 - 18"

**5. DAMPER: (XXX)**

000 - No Damper

53F - Front Operated Aluminum OBD \*

53R - Rear Operated Aluminum OBD \*

**6. ACCESSORIES: (XX) (XX)**

00 - No Accessories

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

01 - Security Bars, 1/2" Diameter Round Steel Bar on 6" Centers

02 - Anchor Bars, 1/2" Diameter x 3" Long

07 - Two Loose Angles, Shipped Unpainted and Separately for Field Installation

**7. FINISH: (XX)**

01 - Mill

44 - British White

\* Tack welded in sleeve.

**51350**

The minimum security grille shall be a Krueger model 51350. The face of the minimum security grille shall be constructed of 1/8" thick aluminum extrusion for the frame and 3/16"x3/4" thick aluminum bars for the blades. The blades shall be set at 0° deflection and reinforced by an aluminum tube spaced no greater than 6" on center utilizing mandrel construction. Each end shall have 1/4" thick aluminum vertical supports welded to the frame for support. The sleeve shall be 1/8" thick aluminum and stitch welded to the face of the minimum security grille and along the entire length of the sleeve.

Optional front or rear operated aluminum opposed blade damper available.

Other options include two loose 1 1/2"x1 1/2"x1/8" aluminum angles, aluminum angle frame 1 1/2"x1 1/2"x1/8" welded at the corners, 1/2" diameter x 3" long aluminum anchor bars and 1/2" diameter aluminum security bars.

**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.