

INTRODUCTION

The 91310 series maximum security grille features a perforated face plate that makes finger penetration difficult in areas that need a secure environment and 100% stainless steel construction. The 46% free area perforation provides minimum pressure loss, making the 91310 an ideal choice for secure areas that require large amounts of supply or return air.

MODEL

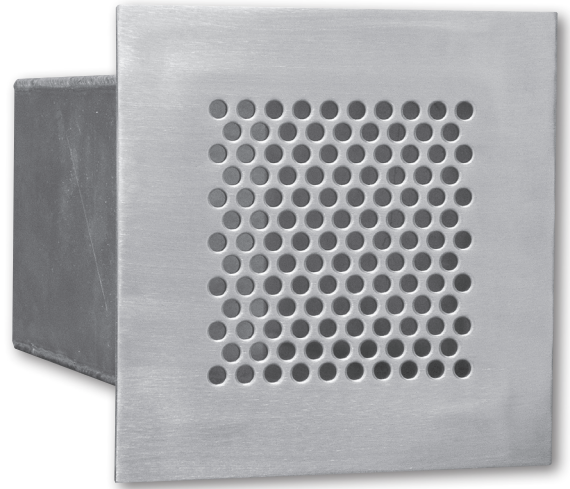
91310 - Maximum Security Grille

FEATURES

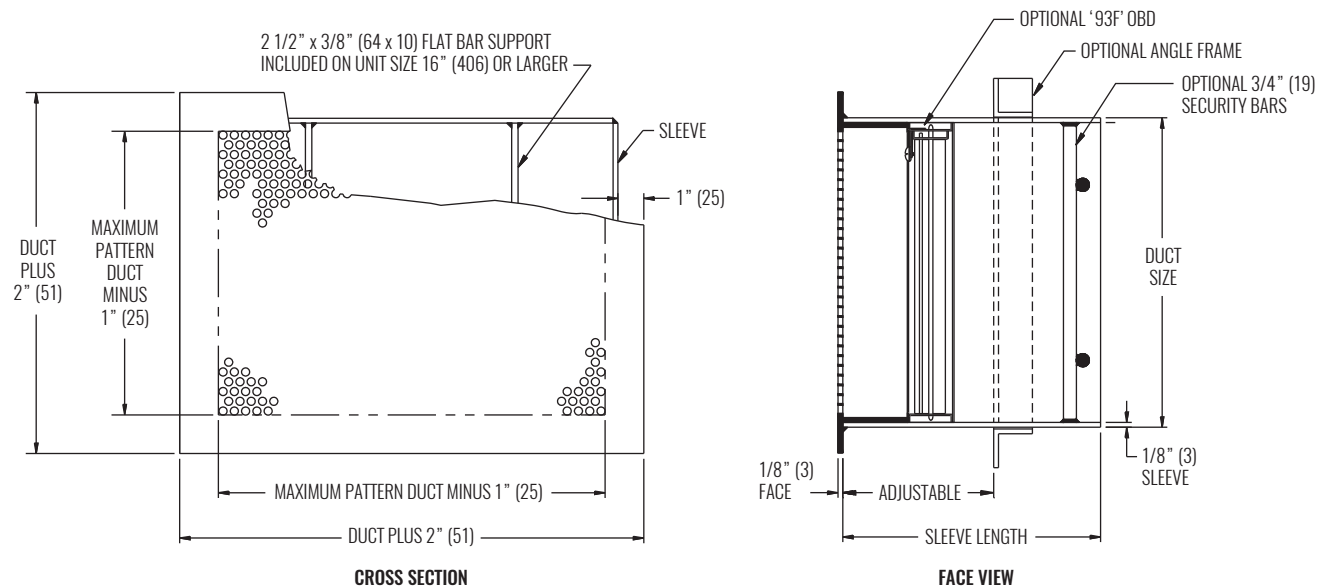
- 10 Gage perforated face and 5/16" holes on 7/16" staggered centers
- 10 Gage stitch welded sleeve
- 304 Stainless steel construction (316 optional)
- Standard finish is 90 - #4 Satin Polish

ACCESSORIES

- Angle frame, shipped loose
- Security bars on 6" centers
- Anchor bars
- Two angles, shipped loose
- Front or rear operated OBD (9OBD)



DIMENSIONAL DATA



NOTE: Dimensions in parentheses are millimeters (mm).

PERFORMANCE DATA | SQUARE NECK, 5/16" DIAMETER HOLES ON 7/16" STAGGERED CENTERS

NOM DUCT	IP DATA				SOUND	METRIC DATA				
	NECK VEL	AIR FLOW	Ps	1-CORE THROW		NOM DUCT	NECK VEL	AIR FLOW	Ps	1-CORE THROW
	in	fpm	cfm	in wg		ft	NC	cm	m/s	l/s
6 x 6	200	30	.010	2 - 3 - 7	<20	15.2 x 15.2	1.02	14	2.5	61 - 94 - 213
	300	50	.020	4 - 6 - 11	<20		1.52	24	5.0	122 - 189 - 335
	400	60	.040	5 - 7 - 12	<20		2.03	28	10.0	152 - 220 - 366
	500	80	.060	6 - 9 - 14	22		2.54	38	14.9	183 - 283 - 427
	600	90	.090	7 - 10 - 15	28		3.05	42	22.4	213 - 315 - 457
	700	110	.120	8 - 12 - 17	32		3.56	52	29.9	244 - 378 - 518
8 x 8	200	60	.010	3 - 5 - 10	<20	20.3 x 20.3	1.02	28	2.5	91 - 157 - 305
	300	90	.020	5 - 7 - 15	<20		1.52	42	5.0	152 - 220 - 457
	400	130	.040	7 - 11 - 18	<20		2.03	61	10.0	213 - 346 - 549
	500	160	.060	9 - 13 - 20	25		2.54	76	14.9	274 - 409 - 610
	600	190	.090	10 - 15 - 22	31		3.05	90	22.4	305 - 472 - 671
	700	220	.120	12 - 17 - 24	36		3.56	104	29.9	366 - 535 - 732
10 x 8	200	80	.010	4 - 6 - 11	<20	25.4 x 20.3	1.02	38	2.5	122 - 189 - 335
	300	123	.020	6 - 9 - 17	<20		1.52	58	5.0	183 - 283 - 518
	400	160	.040	8 - 11 - 20	20		2.03	76	10.0	244 - 346 - 610
	500	210	.060	10 - 15 - 23	26		2.54	99	14.9	305 - 472 - 701
	600	250	.090	12 - 18 - 25	32		3.05	118	22.4	366 - 567 - 762
	700	290	.120	14 - 19 - 27	37		3.56	137	29.9	427 - 598 - 823
10 x 10	200	110	.010	5 - 7 - 14	<20	25.4 x 25.4	1.02	52	2.5	152 - 220 - 427
	300	160	.020	7 - 10 - 20	<20		1.52	76	5.0	213 - 315 - 610
	400	210	.040	9 - 13 - 23	21		2.03	99	10.0	274 - 409 - 701
	500	270	.060	11 - 17 - 26	28		2.54	127	14.9	335 - 535 - 792
	600	320	.090	13 - 20 - 29	33		3.05	151	22.4	396 - 630 - 884
	700	370	.120	15 - 22 - 31	38		3.56	175	29.9	457 - 693 - 945
12 x 12	200	160	.010	5 - 8 - 16	<20	30.5 x 30.5	1.02	76	2.5	152 - 252 - 488
	300	240	.020	8 - 12 - 24	<20		1.52	113	5.0	244 - 378 - 732
	400	320	.040	11 - 16 - 29	23		2.03	151	10.0	335 - 504 - 884
	500	400	.060	14 - 20 - 32	29		2.54	189	14.9	427 - 630 - 975
	600	480	.090	16 - 24 - 35	35		3.05	227	22.4	488 - 756 - 1067
	700	560	.120	19 - 27 - 38	40		3.56	264	29.9	579 - 850 - 1158
14 x 14	200	230	.010	7 - 10 - 20	<20	35.6 x 35.6	1.02	109	2.5	213 - 315 - 610
	300	340	.020	10 - 15 - 29	<20		1.52	160	5.0	305 - 472 - 884
	400	450	.040	13 - 19 - 34	24		2.03	212	10.0	396 - 598 - 1036
	500	560	.060	16 - 24 - 38	31		2.54	264	14.9	488 - 756 - 1158
	600	680	.090	20 - 29 - 42	36		3.05	321	22.4	610 - 913 - 1280
	700	790	.120	23 - 32 - 45	41		3.56	373	29.9	701 - 1007 - 1372

NOTES: Throw values are given for terminal velocities of 100, 75, and 50 fpm. Throw values are given for isothermal conditions. NC values are based on Octave Band 2-7 sound power levels minus a room absorption of 10dB. Dash (-) in space denotes an NC or dB value of less than 10. Data was obtained from tests conducted in accordance with ANSI/ASHRAE Standard 70-1991.

PERFORMANCE DATA | SQUARE NECK, 5/16" DIAMETER HOLES ON 7/16" STAGGERED CENTERS

NOM DUCT	IP DATA				SOUND	METRIC DATA				
	NECK VEL	AIR FLOW	Ps	1-CORE THROW		NOM DUCT	NECK VEL	AIR FLOW	Ps	1-CORE THROW
	in	fpm	cfm	in wg		ft	NC	cm	m/s	l/s
18 x 14	200	300	.010	8 - 11 - 23	<20	45.7 x 35.6	1.02	142	2.5	244 - 346 - 701
	300	440	.020	11 - 17 - 33	<20		1.52	208	5.0	335 - 535 - 1006
	400	590	.040	15 - 22 - 39	25		2.03	278	10.0	457 - 693 - 1189
	500	740	.060	19 - 28 - 44	32		2.54	349	14.9	579 - 881 - 1341
	600	890	.090	22 - 33 - 48	38		3.05	420	22.4	671 - 1039 - 1463
	700	1040	.120	26 - 37 - 52	42		3.56	491	29.9	792 - 1165 - 1585
18 x 18	200	390	.010	9 - 13 - 26	<20	45.7 x 45.7	1.02	184	2.5	274 - 409 - 792
	300	580	.020	13 - 19 - 38	<20		1.52	274	5.0	396 - 598 - 1158
	400	780	.040	17 - 26 - 45	26		2.03	368	10.0	518 - 818 - 1372
	500	970	.060	21 - 32 - 50	33		2.54	458	14.9	640 - 1007 - 1524
	600	1170	.090	26 - 38 - 55	39		3.05	552	22.4	792 - 1196 - 1676
	700	1360	.120	30 - 42 - 59	43		3.56	642	29.9	914 - 1322 - 1798
20 x 20	200	490	.010	10 - 14 - 29	<20	50.8 x 50.8	1.02	231	2.5	305 - 441 - 884
	300	730	.020	14 - 21 - 43	<20		1.52	345	5.0	427 - 661 - 1311
	400	980	.040	19 - 29 - 50	27		2.03	463	10.0	579 - 913 - 1524
	500	1220	.060	24 - 36 - 56	34		2.54	576	14.9	732 - 1133 - 1707
	600	1460	.090	28 - 43 - 62	40		3.05	689	22.4	853 - 1354 - 1890
	700	1710	.120	33 - 47 - 67	44		3.56	807	29.9	1006 - 1480 - 2042
24 x 24	200	720	.010	12 - 17 - 35	<20	61.0 x 61.0	1.02	340	2.5	366 - 535 - 1067
	300	1080	.020	17 - 26 - 52	20		1.52	510	5.0	518 - 818 - 1585
	400	1440	.040	23 - 35 - 61	29		2.03	680	10.0	701 - 1102 - 1859
	500	1800	.060	29 - 43 - 68	36		2.54	850	14.9	884 - 1354 - 2073
	600	2160	.090	35 - 52 - 75	41		3.05	1019	22.4	1067 - 1637 - 2286
	700	2520	.120	41 - 57 - 81	46		3.56	1189	29.9	1250 - 1794 - 2469
32 x 32	200	1310	.010	16 - 23 - 47	<20	81.3 x 81.3	1.02	618	2.5	488 - 724 - 1433
	300	1970	.020	23 - 35 - 70	23		1.52	930	5.0	701 - 1102 - 2134
	400	2630	.040	31 - 47 - 83	32		2.03	1241	10.0	945 - 1480 - 2530
	500	3280	.060	39 - 59 - 92	38		2.54	1548	14.9	1189 - 1857 - 2804
	600	3940	.090	47 - 70 - 101	44		3.05	1859	22.4	1433 - 2204 - 3078
	700	4600	.120	55 - 77 - 109	49		3.56	2171	29.9	1676 - 2424 - 3322

NOTES: Throw values are given for terminal velocities of 100, 75, and 50 fpm. Throw values are given for isothermal conditions. NC values are based on Octave Band 2-7 sound power levels minus a room absorption of 10dB. Dash (-) in space denotes an NC or dB value of less than 10. Data was obtained from tests conducted in accordance with ANSI/ASHRAE Standard 70-1991.

GRILLES | STAINLESS STEEL

PERFORMANCE DATA | ROUND NECK, 5/16" DIAMETER HOLES ON 7/16" STAGGERED CENTERS

NOM DUCT	IP DATA				SOUND	METRIC DATA				
	NECK VEL	AIR FLOW	Ps	1-CORE THROW		NOM DUCT	NECK VEL	AIR FLOW	Ps	1-CORE THROW
	in	fpm	cfm	in wg		ft	NC	cm	m/s	l/s
6	200	20	.010	2 - 3 - 5	<20	15.2	1.02	9	2.5	61 - 94 - 152
	300	40	.020	3 - 5 - 10	<20		1.52	19	5.0	91 - 157 - 305
	400	50	.040	4 - 7 - 11	<20		2.03	24	10.0	122 - 220 - 335
	500	60	.060	5 - 8 - 12	21		2.54	28	14.9	152 - 252 - 366
	600	70	.090	6 - 9 - 13	27		3.05	33	22.4	183 - 283 - 396
	700	90	.120	8 - 11 - 15	31		3.56	42	29.9	244 - 346 - 457
8	200	50	.010	3 - 5 - 9	<20	20.3	1.02	24	2.5	91 - 157 - 274
	300	70	.020	4 - 6 - 13	<20		1.52	33	5.0	122 - 189 - 396
	400	100	.040	6 - 9 - 16	<20		2.03	47	10.0	183 - 283 - 488
	500	120	.060	7 - 11 - 18	24		2.54	57	14.9	213 - 346 - 549
	600	150	.090	9 - 14 - 20	30		3.05	71	22.4	274 - 441 - 610
	700	170	.120	10 - 15 - 21	34		3.56	80	29.9	305 - 472 - 640
10	200	80	.010	4 - 6 - 11	<20	25.4	1.02	38	2.5	122 - 189 - 335
	300	130	.020	6 - 9 - 18	<20		1.52	61	5.0	183 - 283 - 549
	400	170	.040	8 - 12 - 21	20		2.03	80	10.0	244 - 378 - 640
	500	210	.060	10 - 15 - 23	27		2.54	99	14.9	305 - 472 - 701
	600	250	.090	12 - 18 - 25	32		3.05	118	22.4	366 - 567 - 762
	700	290	.120	14 - 19 - 27	37		3.56	137	29.9	427 - 598 - 823
12	200	130	.010	5 - 7 - 15	<20	30.5	1.02	61	2.5	152 - 220 - 457
	300	190	.020	7 - 11 - 22	<20		1.52	90	5.0	213 - 346 - 671
	400	250	.040	10 - 14 - 25	22		2.03	118	10.0	305 - 441 - 762
	500	320	.060	12 - 18 - 29	28		2.54	151	14.9	366 - 567 - 884
	600	380	.090	15 - 22 - 31	34		3.05	179	22.4	457 - 693 - 945
	700	440	.120	17 - 24 - 34	39		3.56	208	29.9	518 - 756 - 1036
14	200	180	.010	6 - 9 - 17	<20	35.6	1.02	85	2.5	183 - 283 - 518
	300	270	.020	9 - 13 - 26	<20		1.52	127	5.0	274 - 409 - 792
	400	350	.040	11 - 17 - 30	23		2.03	165	10.0	335 - 535 - 914
	500	440	.060	14 - 21 - 34	30		2.54	208	14.9	427 - 661 - 1036
	600	530	.090	17 - 26 - 37	35		3.05	250	22.4	518 - 818 - 1128
	700	620	.120	20 - 28 - 40	40		3.56	293	29.9	610 - 881 - 1219

NOTES: Throw values are given for terminal velocities of 100, 75, and 50 fpm. Throw values are given for isothermal conditions. NC values are based on Octave Band 2-7 sound power levels minus a room absorption of 10dB. Dash (-) in space denotes an NC or dB value of less than 10. Data was obtained from tests conducted in accordance with ANSI/ASHRAE Standard 70-1991.

PERFORMANCE DATA | ROUND NECK, 5/16" DIAMETER HOLES ON 7/16" STAGGERED CENTERS

NOM DUCT	IP DATA				SOUND	METRIC DATA				
	NECK VEL	AIR FLOW	Ps	1-CORE THROW		NOM DUCT	NECK VEL	AIR FLOW	Ps	1-CORE THROW
	in	fpm	cfm	in wg		ft	NC	cm	m/s	l/s
16	200	240	.010	7 - 10 - 20	<20	40.6	1.02	113	2.5	213 - 315 - 610
	300	360	.020	10 - 15 - 30	<20		1.52	170	5.0	305 - 472 - 914
	400	470	.040	13 - 20 - 35	24		2.03	222	10.0	396 - 630 - 1067
	500	590	.060	17 - 25 - 39	31		2.54	278	14.9	518 - 787 - 1189
	600	710	.090	20 - 30 - 43	37		3.05	335	22.4	610 - 944 - 1311
	700	830	.120	23 - 33 - 46	41		3.56	392	29.9	701 - 1039 - 1402
18	200	310	.010	8 - 11 - 23	<20	45.7	1.02	146	2.5	244 - 346 - 701
	300	460	.020	11 - 17 - 34	<20		1.52	217	5.0	335 - 535 - 1036
	400	610	.040	15 - 23 - 40	25		2.03	288	10.0	457 - 724 - 1219
	500	770	.060	19 - 28 - 45	32		2.54	363	14.9	579 - 881 - 1372
	600	920	.090	23 - 34 - 49	38		3.05	434	22.4	701 - 1070 - 1494
	700	1070	.120	26 - 37 - 53	42		3.56	505	29.9	792 - 1165 - 1615
20	200	380	.010	8 - 13 - 25	<20	50.8	1.02	179	2.5	244 - 409 - 762
	300	580	.020	13 - 19 - 38	<20		1.52	274	5.0	396 - 598 - 1158
	400	770	.040	17 - 25 - 45	26		2.03	363	10.0	518 - 787 - 1372
	500	960	.060	21 - 32 - 50	33		2.54	453	14.9	640 - 1007 - 1524
	600	1150	.090	25 - 38 - 55	39		3.05	543	22.4	762 - 1196 - 1676
	700	1340	.120	29 - 42 - 59	43		3.56	632	29.9	884 - 1322 - 1798
24	200	560	.010	10 - 15 - 30	<20	61.0	1.02	264	2.5	305 - 472 - 914
	300	850	.020	15 - 23 - 46	<20		1.52	401	5.0	457 - 724 - 1402
	400	1130	.040	20 - 31 - 54	28		2.03	533	10.0	610 - 976 - 1646
	500	1410	.060	26 - 38 - 61	35		2.54	665	14.9	792 - 1196 - 1859
	600	1690	.090	31 - 46 - 66	40		3.05	798	22.4	945 - 1448 - 2012
	700	1980	.120	36 - 51 - 72	45		3.56	934	29.9	1097 - 1605 - 2195

NOTES: Throw values are given for terminal velocities of 100, 75, and 50 fpm. Throw values are given for isothermal conditions. NC values are based on Octave Band 2-7 sound power levels minus a room absorption of 10dB. Dash (-) in space denotes an NC or dB value of less than 10. Data was obtained from tests conducted in accordance with ANSI/ASHRAE Standard 70-1991.

GRILLES | STAINLESS STEEL

91310

Stainless Steel Supply Grille, Maximum Security



ENGINEERING SPECIFICATION & CONFIGURATION

91310

The security grille shall be a Krueger model 91310 stainless steel maximum security grille. The face of the maximum security grille shall have 5/16" diameter holes on 7/16" staggered centers with 46% free area and be 10 gage. The sleeve shall be 10 gage and stitch welded to the face of the maximum security grille and along the entire length of the sleeve. Construction shall be 100% 304 stainless steel.

Optional 316 stainless steel construction available.

FINISH

The finish shall be 90 - #4 Satin Polish, obtained by finishing with a 120-grit abrasive.

- 1. SERIES: (XXXXX)**
91310 - Supply/Return Security Grille
- 2. PATTERN: SLEEVE GAGE (XX)**
10 - 10 Gage
- 3. WIDTH: (XX)**
6" - 30" in 2" Increments, or 9" *
- 4. HEIGHT: (XX)**
4" - 30" in 2" Increments, or 9" *
- 5. SLEEVE LENGTH: (XX)**
6", 8", 10", 12", or 18"
- 6. MATERIAL: (XXX)**
304 - Stainless Steel Grade 304
316 - Stainless Steel Grade 316
- 7. DAMPER: (XXX)**
00 - No Damper
93L - Front Operated, Stainless Steel OBD **
93R - Rear Operated, Stainless Steel OBD **
- 8. ACCESSORIES: (XX) (XX)**
00 - No Accessories
L - Angle Frame, Shipped Unpainted
& Loose for Field Installation
01 - Security Bars, 3/4" Diameter on 6" Centers
02 - Anchor Bars, 3/4" Diameter x 3" Long
07 - Two Loose Angles, Shipped Separately for
Field Installation
- 9. FINISH: (XX)**
90 - #4 Satin Polish

* If selecting 9" Width, Height must also be 9".

** Damper is welded in sleeve.

SAMPLE CONFIGURATION: 91310 - 10 - 14x16 - 8 - 304 - 93F - L - 00 - 01