

# KOOLAIR

## series

# KSG

## Security grilles

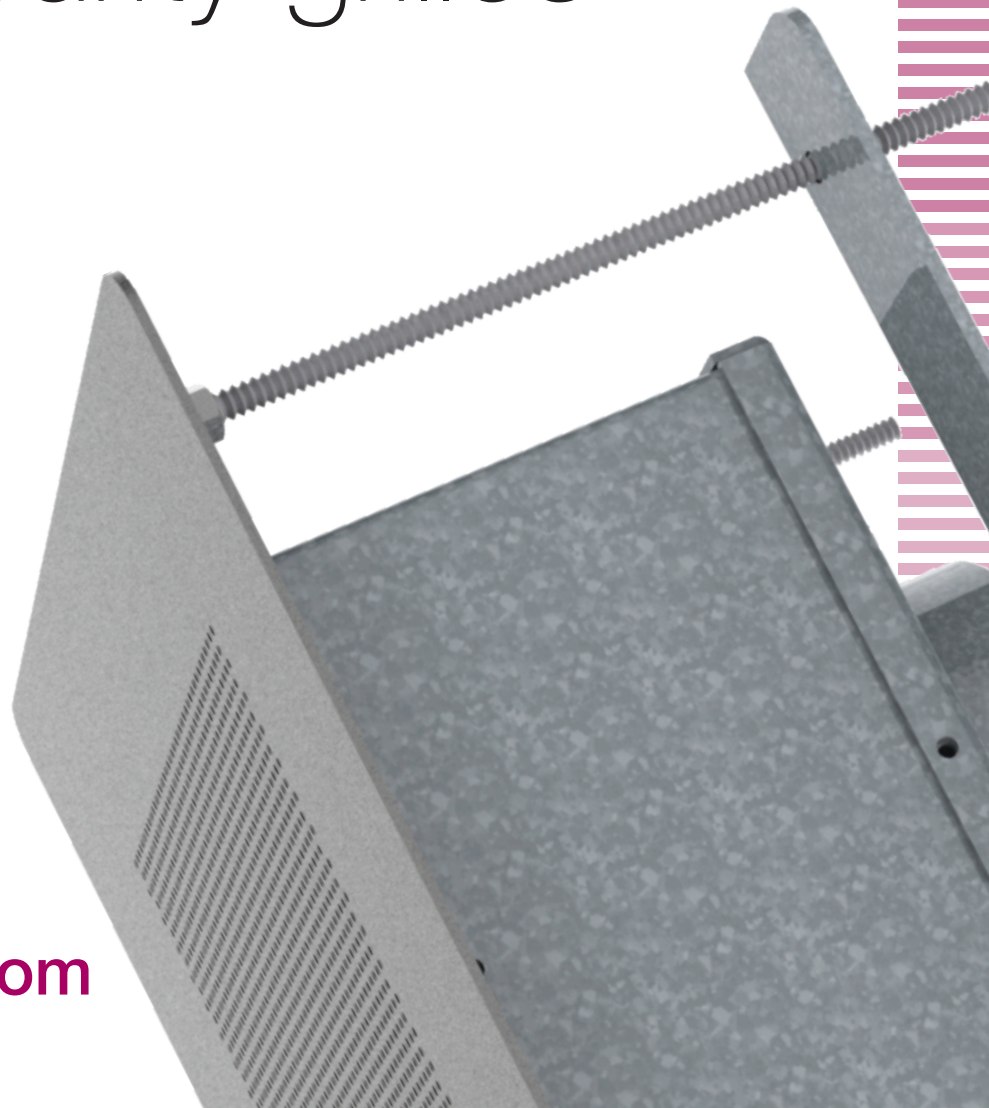
ISO 9001

BUREAU VERITAS  
Certification

Sistema de Gestión



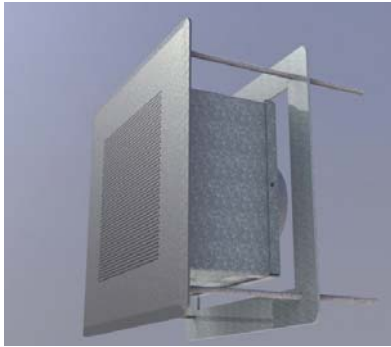
[www.koolair.com](http://www.koolair.com)



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## Security Grilles Type KSG



Top plenum KSG-1-MJ



Side plenum KSG-3



Bevelled edge KSG-1-MJ

### Description

Koolair range of security grilles are manufactured in line with the latest requirements of the Home Office and Ministry of Justice, for use in all areas requiring a robust grille. They can be used in both supply and extract applications.

### Construction

KSG Security grilles are manufactured in either 2 mm thick stainless steel brushed finish or 3 mm thick mild steel painted finish, and are available with opposed blade dampers (adjustable from rear of KSG-1) fire rated dampers and circular/rectangular connections.

### Dimensions

General standard dimensions are as per relevant tables, special sizes are available on request.

### Finishes

Stainless steel grilles are manufactured from Grade 304 material and have a light brushed matt finish, steel grilles undergo a passivation process prior to powder coating to any RAL colour.

### IDENTIFICATION

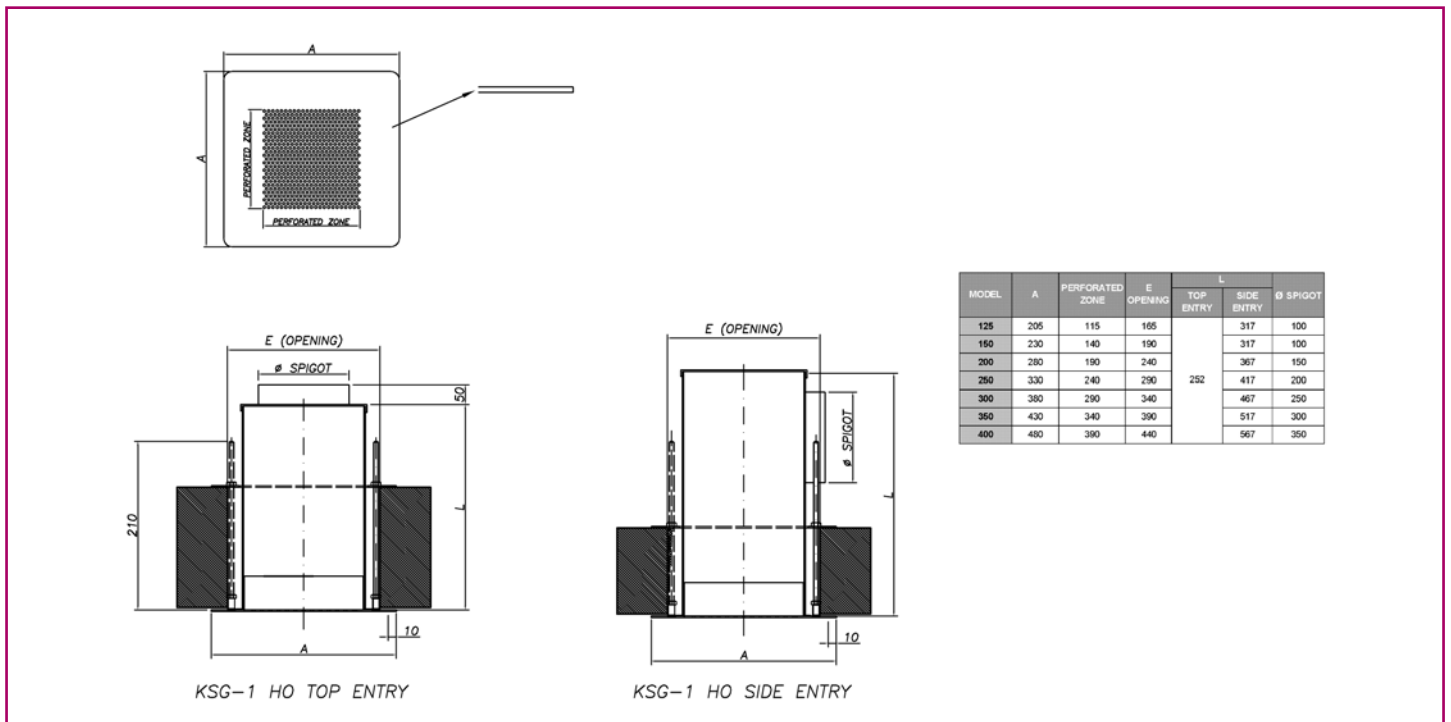
KSG	Security Grille
Security level	1 High Security: (MJ, HO) 3 Medium Security
Material – CH	Steel sheet
- Inox	Stainless steel
A x A	Nominal dimension (in mm)
Plenum - PL	Side entry
- PS	Top entry
Options	O (damper) FD (fire damper)
Finished	RAL colour range

Example: KSG-1 / CH / 250 x 250 / PS / RAL 9010

High security grille in steel, dimensions 250 x 250 with top entry plenum painted in RAL 9010.

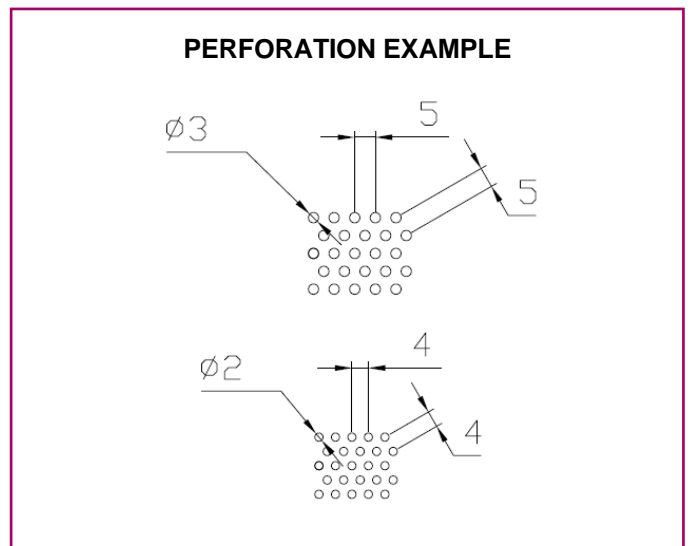
## High security grilles type KSG-1 - HO

Level 1 Security Grilles are an anti-ligature grille and designed for maximum security applications (Police Custody Cells). They are available with either top or side entry connection plenum boxes (fire rated on request - subsequent on site application of a fire cladding is required) Regulation dampers can be fitted within the grille assembly (Prior to consultation). Fire dampers can be fitted within the grille assembly. Wall thickness to be stated prior to ordering.



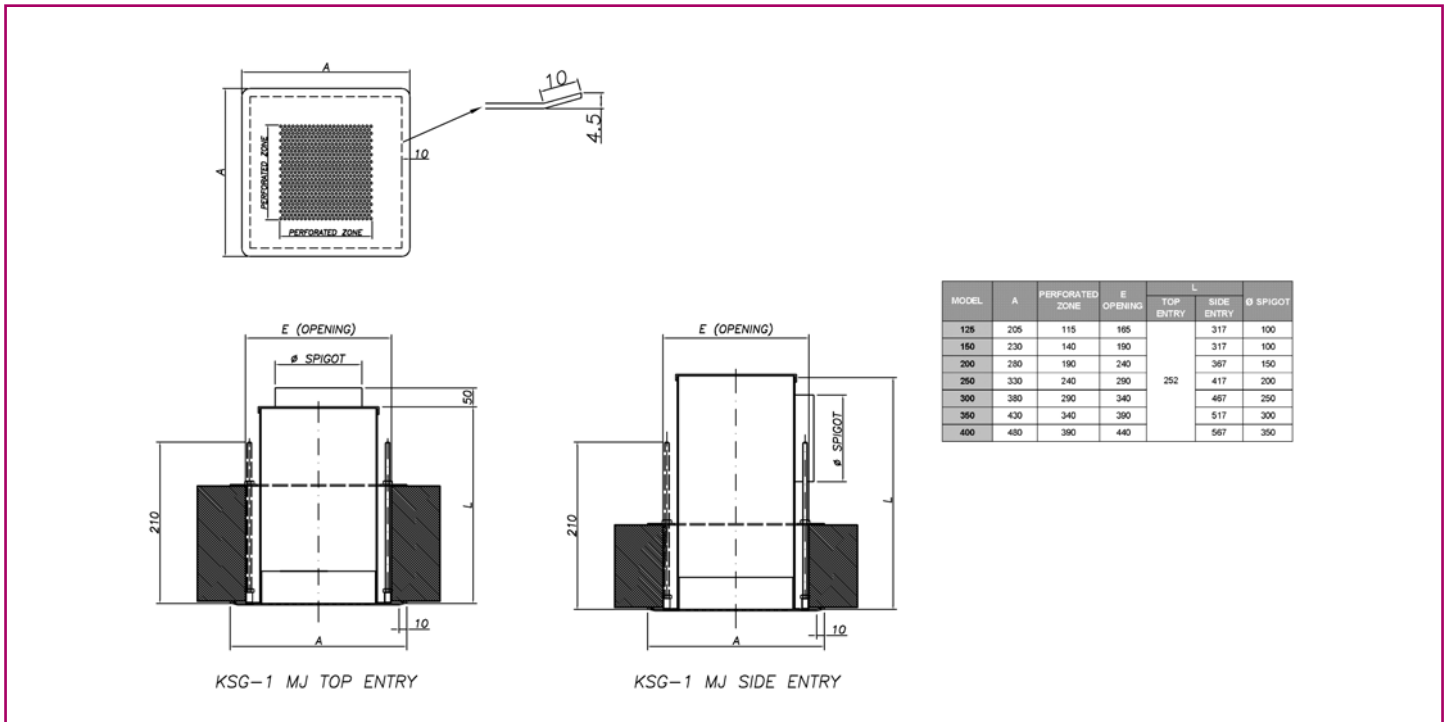
**Material:**  
 3 mm Thick Mild Steel  
 2 mm Thick Stainless Steel  
 2 mm Thick Stainless Steel

**Perforation:**  
 3 mm hole @ 6 mm pitch  
 2 mm hole @ 4 mm pitch  
 3 mm hole @ 5 mm pitch



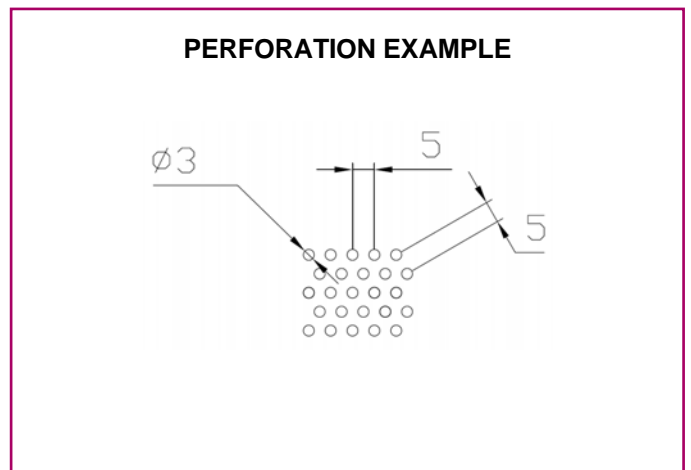
## High security grilles type KSG-1 - MJ

Level 1 Security Grilles are an anti-ligature grille and designed for maximum security applications (Prison Cells). They are available with either top or side entry connection plenum boxes (fire rated on request - subsequent on site application of a fire cladding is required) Regulation dampers can be fitted within the grille assembly (Prior to consultation). Fire dampers can be fitted within the grille assembly. Wall thickness to be stated prior to ordering.



**Material:**  
 2 mm Thick Stainless Steel  
 2 mm Thick Stainless Steel  
 2 mm Thick Stainless Steel

**Perforation:**  
 3 mm hole @ 6 mm pitch  
 2 mm hole @ 4 mm pitch  
 3 mm hole @ 5 mm pitch



## Quick selection table KSG-1

KSG-1 – HIGH SECURITY – SIDE ENTRY									
Q		Size	125x125	150x150	200x200	250x250	300x300	350x350	400x400
[m <sup>3</sup> /h]	[l/s]								
30	8,3	V <sub>f</sub> [m/s] X [m] P <sub>s</sub> [Pa] dB(A)	0,5 0,9 3 <20						
45	12,5	V <sub>f</sub> [m/s] X [m] P <sub>s</sub> [Pa] dB(A)	0,8 1,4 7 <20	0,6 1,2 4 <20					
60	16,7	V <sub>f</sub> [m/s] X [m] P <sub>s</sub> [Pa] dB(A)	1,1 1,9 13 <20	0,7 1,6 6 <20					
75	20,8	V <sub>f</sub> [m/s] X [m] P <sub>s</sub> [Pa] dB(A)	1,3 2,4 20 <20	0,9 2,0 10 <20	0,5 1,5 3 <20				
100	27,8	V <sub>f</sub> [m/s] X [m] P <sub>s</sub> [Pa] dB(A)	1,8 3,2 35 28	1,2 2,6 17 <20	0,7 2,0 6 <20				
150	41,7	V <sub>f</sub> [m/s] X [m] P <sub>s</sub> [Pa] dB(A)	2,7 4,7 79 40	1,9 3,9 39 31	1,0 3,0 13 <20	0,7 2,4 6 <20	0,5 2,0 3 <20		
200	55,6	V <sub>f</sub> [m/s] X [m] P <sub>s</sub> [Pa] dB(A)	3,6 6,3 140 49	2,5 5,3 69 40	1,4 3,9 23 26	0,9 3,2 10 <20	0,6 2,6 5 <20	0,5 2,3 3 <20	
250	69,4	V <sub>f</sub> [m/s] X [m] P <sub>s</sub> [Pa] dB(A)		3,1 6,6 108 47	1,7 4,9 36 32	1,1 3,9 16 21	0,8 3,3 8 <20	0,6 2,8 4 <20	
300	83,3	V <sub>f</sub> [m/s] X [m] P <sub>s</sub> [Pa] dB(A)			2,1 5,9 52 38	1,3 4,7 23 27	0,9 3,9 11 <20	0,7 3,4 6 <20	0,5 3,0 3 <20
350	97,2	V <sub>f</sub> [m/s] X [m] P <sub>s</sub> [Pa] dB(A)			2,4 6,9 71 42	1,6 5,5 31 31	1,1 4,6 15 22	0,8 3,9 8 <20	0,6 3,5 5 <20
400	111,1	V <sub>f</sub> [m/s] X [m] P <sub>s</sub> [Pa] dB(A)			2,8 7,9 93 46	1,8 6,3 41 35	1,2 5,3 20 26	0,9 4,5 11 <20	0,7 3,9 6 <20
500	138,9	V <sub>f</sub> [m/s] X [m] P <sub>s</sub> [Pa] dB(A)				2,2 7,9 64 42	1,5 6,6 31 33	1,1 5,6 17 25	0,9 4,9 10 <20
600	166,7	V <sub>f</sub> [m/s] X [m] P <sub>s</sub> [Pa] dB(A)				2,7 9,5 92 48	1,9 7,9 44 39	1,4 6,8 24 31	1,0 5,9 14 24
700	194,4	V <sub>f</sub> [m/s] X [m] P <sub>s</sub> [Pa] dB(A)					2,2 9,2 60 43	1,6 7,9 32 36	1,2 6,9 19 29
800	222,2	V <sub>f</sub> [m/s] X [m] P <sub>s</sub> [Pa] dB(A)					2,5 10,5 78 47	1,8 9,0 42 40	1,4 7,9 25 33
900	250,0	V <sub>f</sub> [m/s] X [m] P <sub>s</sub> [Pa] dB(A)						2,0 10,1 54 43	1,6 8,9 31 36
1000	277,8	V <sub>f</sub> [m/s] X [m] P <sub>s</sub> [Pa] dB(A)						2,3 11,3 66 46	1,7 9,9 39 40
1250	347,2	V <sub>f</sub> [m/s] X [m] P <sub>s</sub> [Pa] dB(A)							2,2 12,3 61 46

### Symbols

- V<sub>f</sub> Face velocity (m/s)
- X Throw (m)
- P<sub>s</sub> Static pressure (Pa)
- dB(A) Sound power level

Correction factors for return or exhaust air:

L<sub>WA</sub> [dB(A)] = dB(A) (table) + 6  
 P<sub>s</sub> = P<sub>s</sub> (table) x 1,5

# Quick selection table KSG-1

KSG-1 – HIGH SECURITY – TOP ENTRY									
Q		Size	125x125	150x150	200x200	250x250	300x300	350x350	400x400
[m <sup>3</sup> /h]	[l/s]								
30	8,3	V <sub>f</sub> [m/s]	0,5						
		X [m]	0,9						
		P <sub>s</sub> [Pa]	2						
		dB(A)	<20						
45	12,5	V <sub>f</sub> [m/s]	0,8	0,6					
		X [m]	1,4	1,2					
		P <sub>s</sub> [Pa]	5	3					
		dB(A)	<20	<20					
60	16,7	V <sub>f</sub> [m/s]	1,1	0,7					
		X [m]	1,9	1,6					
		P <sub>s</sub> [Pa]	9	5					
		dB(A)	<20	<20					
75	20,8	V <sub>f</sub> [m/s]	1,3	0,9	0,5				
		X [m]	2,4	2,0	1,5				
		P <sub>s</sub> [Pa]	14	7	2				
		dB(A)	<20	<20	<20				
100	27,8	V <sub>f</sub> [m/s]	1,8	1,2	0,7				
		X [m]	3,2	2,6	2,0				
		P <sub>s</sub> [Pa]	26	13	4				
		dB(A)	<20	<20	<20				
150	41,7	V <sub>f</sub> [m/s]	2,7	1,9	1,0	0,7	0,5		
		X [m]	4,7	3,9	3,0	2,4	2,0		
		P <sub>s</sub> [Pa]	58	28	10	4	2		
		dB(A)	32	23	<20	<20	<20		
200	55,6	V <sub>f</sub> [m/s]	3,6	2,5	1,4	0,9	0,6	0,5	
		X [m]	6,3	5,3	3,9	3,2	2,6	2,3	
		P <sub>s</sub> [Pa]	102	51	17	7	4	2	
		dB(A)	41	32	<20	<20	<20	<20	
250	69,4	V <sub>f</sub> [m/s]	4,4	3,1	1,7	1,1	0,8	0,6	
		X [m]	7,9	6,6	4,9	3,9	3,3	2,8	
		P <sub>s</sub> [Pa]	160	79	26	12	6	3	
		dB(A)	47	38	24	<20	<20	<20	
300	83,3	V <sub>f</sub> [m/s]		3,7	2,1	1,3	0,9	0,7	0,5
		X [m]		7,9	5,9	4,7	3,9	3,4	3,0
		P <sub>s</sub> [Pa]		114	38	17	8	4	3
		dB(A)		44	29	<20	<20	<20	<20
400	111,1	V <sub>f</sub> [m/s]			2,8	1,8	1,2	0,9	0,7
		X [m]			7,9	6,3	5,3	4,5	3,9
		P <sub>s</sub> [Pa]			68	30	14	8	5
		dB(A)			38	27	<20	<20	<20
500	138,9	V <sub>f</sub> [m/s]			3,5	2,2	1,5	1,1	0,9
		X [m]			9,9	7,9	6,6	5,6	4,9
		P <sub>s</sub> [Pa]			106	46	22	12	7
		dB(A)			45	34	25	<20	<20
600	166,7	V <sub>f</sub> [m/s]			4,2	2,7	1,9	1,4	1,0
		X [m]			11,8	9,5	7,9	6,8	5,9
		P <sub>s</sub> [Pa]			152	67	32	17	10
		dB(A)			50	39	30	23	<20
700	194,4	V <sub>f</sub> [m/s]				3,1	2,2	1,6	1,2
		X [m]				11,0	9,2	7,9	6,9
		P <sub>s</sub> [Pa]				91	44	24	14
		dB(A)				44	35	27	21
800	222,2	V <sub>f</sub> [m/s]				3,6	2,5	1,8	1,4
		X [m]				12,6	10,5	9,0	7,9
		P <sub>s</sub> [Pa]				119	57	31	18
		dB(A)				48	39	31	25
900	250,0	V <sub>f</sub> [m/s]					2,8	2,0	1,6
		X [m]					11,8	10,1	8,9
		P <sub>s</sub> [Pa]					73	39	23
		dB(A)					42	35	28
1000	277,8	V <sub>f</sub> [m/s]					3,1	2,3	1,7
		X [m]					13,1	11,3	9,9
		P <sub>s</sub> [Pa]					90	48	28
		dB(A)					45	38	31
1500	416,7	V <sub>f</sub> [m/s]							2,6
		X [m]							14,8
		P <sub>s</sub> [Pa]							64
		dB(A)							43

### Symbols

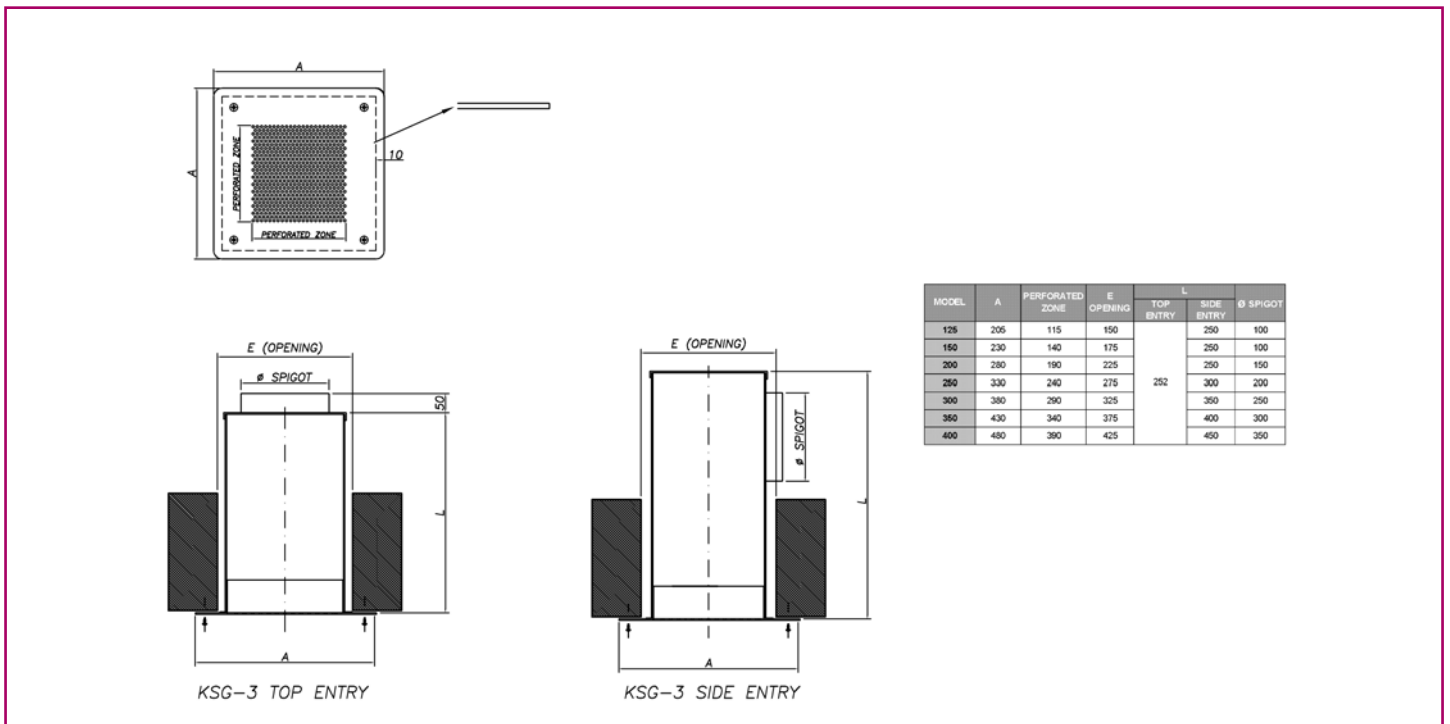
- V<sub>f</sub> Face velocity (m/s)
- X Throw (m)
- P<sub>s</sub> Static pressure (Pa)
- dB(A) Sound power level

Correction factors for return or exhaust air:

$L_{WA} [dB(A)] = dB(A) (table) + 6$   
 $P_s = P_s (table) \times 1,5$

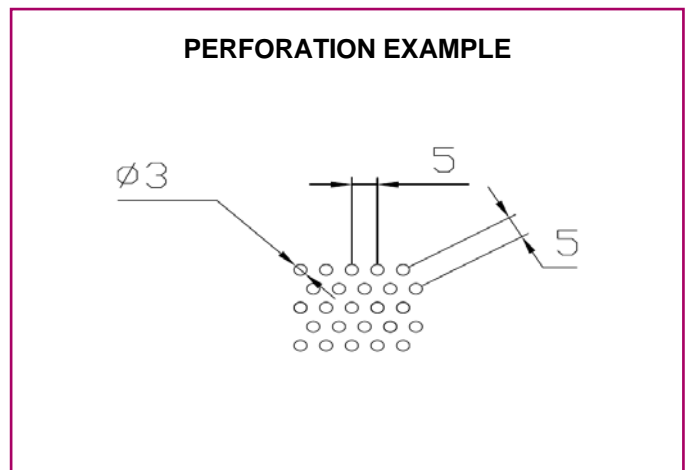
## Medium security grilles type KSG-3

Level 3 Security Grilles are an anti-ligature grille and designed for secure applications (Police Association Areas, Secure Hospitals), they are available with either top or side entry connection plenum boxes (fire rated on request - subsequent on site application of a fire cladding is required) Regulation dampers can be fitted within the grille assembly. Fire dampers can be fitted within the grille assembly. Fixing is by means of security screws (not supplied) into countersunk holes. Wall thickness to be stated prior to ordering.



**Material:**  
 3 mm Thick Mild Steel  
 2 mm Thick Stainless Steel  
 2 mm Thick Stainless Steel

**Perforation:**  
 3 mm hole @ 6 mm pitch  
 2 mm hole @ 4 mm pitch  
 3 mm hole @ 5 mm pitch





# Quick selection table KSG-3

KSG-3 - MEDIUM SECURITY - SIDE ENTRY									
Q		Size	125x125	150x150	200x200	250x250	300x300	350x350	400x400
[m <sup>3</sup> /h]	[l/s]								
30	8,3	V <sub>f</sub> [m/s] X [m] P <sub>s</sub> [Pa] dB(A)	0,5 1,0 4 <20						
45	12,5	V <sub>f</sub> [m/s] X [m] P <sub>s</sub> [Pa] dB(A)	0,8 1,5 10 <20	0,6 1,2 5 <20					
60	16,7	V <sub>f</sub> [m/s] X [m] P <sub>s</sub> [Pa] dB(A)	1,1 2,0 17 <20	0,7 1,6 8 <20					
75	20,8	V <sub>f</sub> [m/s] X [m] P <sub>s</sub> [Pa] dB(A)	1,3 2,5 27 24	0,9 2,1 13 <20	0,5 1,5 4 <20				
100	27,8	V <sub>f</sub> [m/s] X [m] P <sub>s</sub> [Pa] dB(A)	1,8 3,3 48 33	1,2 2,7 24 24	0,7 2,1 8 <20				
150	41,7	V <sub>f</sub> [m/s] X [m] P <sub>s</sub> [Pa] dB(A)	2,7 4,9 107 45	1,9 4,1 53 36	1,0 3,1 18 22	0,7 2,5 8 <20	0,5 2,1 4 <20		
200	55,6	V <sub>f</sub> [m/s] X [m] P <sub>s</sub> [Pa] dB(A)		2,5 5,5 94 44	1,4 4,1 32 30	0,9 3,3 14 <20	0,6 2,7 7 <20	0,5 2,4 4 <20	
250	69,4	V <sub>f</sub> [m/s] X [m] P <sub>s</sub> [Pa] dB(A)			1,7 5,1 49 37	1,1 4,1 22 26	0,8 3,4 10 <20	0,6 2,9 6 <20	
300	83,3	V <sub>f</sub> [m/s] X [m] P <sub>s</sub> [Pa] dB(A)			2,1 6,2 71 42	1,3 4,9 31 31	0,9 4,1 15 22	0,7 3,5 8 <20	0,5 3,1 5 <20
350	97,2	V <sub>f</sub> [m/s] X [m] P <sub>s</sub> [Pa] dB(A)			2,4 7,2 97 47	1,6 5,8 42 36	1,1 4,8 20 27	0,8 4,1 11 <20	0,6 3,6 6 <20
400	111,1	V <sub>f</sub> [m/s] X [m] P <sub>s</sub> [Pa] dB(A)			2,8 8,2 126 51	1,8 6,6 55 40	1,2 5,5 27 31	0,9 4,7 14 23	0,7 4,1 8 <20
500	138,9	V <sub>f</sub> [m/s] X [m] P <sub>s</sub> [Pa] dB(A)				2,2 8,2 86 47	1,5 6,9 42 38	1,1 5,9 23 30	0,9 5,1 13 23
600	166,7	V <sub>f</sub> [m/s] X [m] P <sub>s</sub> [Pa] dB(A)				2,7 9,9 124 52	1,9 8,2 60 43	1,4 7,1 32 35	1,0 6,2 19 29
700	194,4	V <sub>f</sub> [m/s] X [m] P <sub>s</sub> [Pa] dB(A)					2,2 9,6 82 48	1,6 8,2 44 40	1,2 7,2 26 33
800	222,2	V <sub>f</sub> [m/s] X [m] P <sub>s</sub> [Pa] dB(A)					2,5 11,0 107 52	1,8 9,4 58 44	1,4 8,2 34 37
900	250,0	V <sub>f</sub> [m/s] X [m] P <sub>s</sub> [Pa] dB(A)						2,0 10,6 73 48	1,6 9,3 43 41
1000	277,8	V <sub>f</sub> [m/s] X [m] P <sub>s</sub> [Pa] dB(A)						2,3 11,8 90 51	1,7 10,3 53 44
1250	347,2	V <sub>f</sub> [m/s] X [m] P <sub>s</sub> [Pa] dB(A)							2,2 12,9 82 51

**Symbols**

- V<sub>f</sub> Face velocity (m/s)
- X Throw (m)
- P<sub>s</sub> Static pressure (Pa)
- dB(A) Sound power level

Correction factors for return or exhaust air:

L<sub>WA</sub> [dB(A)] = dB(A) (table) + 6  
 P<sub>s</sub> = P<sub>s</sub> (table) x 1,5

## Quick selection table KSG-3

KSG-3 - MEDIUM SECURITY - TOP ENTRY									
Q		Size	125x125	150x150	200x200	250x250	300x300	350x350	400x400
[m <sup>3</sup> /h]	[l/s]								
30	8,3	V <sub>f</sub> [m/s] X [m] P <sub>s</sub> [Pa] dB(A)	0,5 1,0 3 <20						
45	12,5	V <sub>f</sub> [m/s] X [m] P <sub>s</sub> [Pa] dB(A)	0,8 1,5 7 <20	0,6 1,2 3 <20					
60	16,7	V <sub>f</sub> [m/s] X [m] P <sub>s</sub> [Pa] dB(A)	1,1 2,0 13 <20	0,7 1,6 6 <20					
75	20,8	V <sub>f</sub> [m/s] X [m] P <sub>s</sub> [Pa] dB(A)	1,3 2,5 20 <20	0,9 2,1 10 <20	0,5 1,5 3 <20				
100	27,8	V <sub>f</sub> [m/s] X [m] P <sub>s</sub> [Pa] dB(A)	1,8 3,3 35 24	1,2 2,7 17 <20	0,7 2,1 6 <20				
150	41,7	V <sub>f</sub> [m/s] X [m] P <sub>s</sub> [Pa] dB(A)	2,7 4,9 78 36	1,9 4,1 39 27	1,0 3,1 13 <20	0,7 2,5 6 <20	0,5 2,1 3 <20		
200	55,6	V <sub>f</sub> [m/s] X [m] P <sub>s</sub> [Pa] dB(A)	3,6 6,6 139 45	2,5 5,5 69 36	1,4 4,1 23 22	0,9 3,3 10 <20	0,6 2,7 5 <20	0,5 2,4 3 <20	
250	69,4	V <sub>f</sub> [m/s] X [m] P <sub>s</sub> [Pa] dB(A)		3,1 6,9 107 43	1,7 5,1 36 29	1,1 4,1 16 <20	0,8 3,4 8 <20	0,6 2,9 4 <20	
300	83,3	V <sub>f</sub> [m/s] X [m] P <sub>s</sub> [Pa] dB(A)		3,7 8,2 155 48	2,1 6,2 52 34	1,3 4,9 23 23	0,9 4,1 11 <20	0,7 3,5 6 <20	0,5 3,1 3 <20
400	111,1	V <sub>f</sub> [m/s] X [m] P <sub>s</sub> [Pa] dB(A)			2,8 8,2 92 43	1,8 6,6 40 32	1,2 5,5 19 23	0,9 4,7 11 <20	0,7 4,1 6 <20
500	138,9	V <sub>f</sub> [m/s] X [m] P <sub>s</sub> [Pa] dB(A)			3,5 10,3 144 49	2,2 8,2 63 38	1,5 6,9 30 29	1,1 5,9 16 22	0,9 5,1 10 <20
600	166,7	V <sub>f</sub> [m/s] X [m] P <sub>s</sub> [Pa] dB(A)				2,7 9,9 91 44	1,9 8,2 44 35	1,4 7,1 24 27	1,0 6,2 14 20
700	194,4	V <sub>f</sub> [m/s] X [m] P <sub>s</sub> [Pa] dB(A)				3,1 11,5 124 48	2,2 9,6 60 39	1,6 8,2 32 32	1,2 7,2 19 25
800	222,2	V <sub>f</sub> [m/s] X [m] P <sub>s</sub> [Pa] dB(A)					2,5 11,0 78 43	1,8 9,4 42 36	1,4 8,2 25 29
900	250,0	V <sub>f</sub> [m/s] X [m] P <sub>s</sub> [Pa] dB(A)					2,8 12,4 99 47	2,0 10,6 53 39	1,6 9,3 31 33
1000	277,8	V <sub>f</sub> [m/s] X [m] P <sub>s</sub> [Pa] dB(A)						2,3 11,8 66 42	1,7 10,3 39 36
1500	416,7	V <sub>f</sub> [m/s] X [m] P <sub>s</sub> [Pa] dB(A)							2,6 15,4 87 48

### Symbols

- V<sub>f</sub> Face velocity (m/s)
- X Throw (m)
- P<sub>s</sub> Static pressure (Pa)
- dB(A) Sound power level

Correction factors for return or exhaust air:

$L_{WA} [dB(A)] = dB(A) (table) + 6$   
 $P_s = P_s (table) \times 1,5$

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