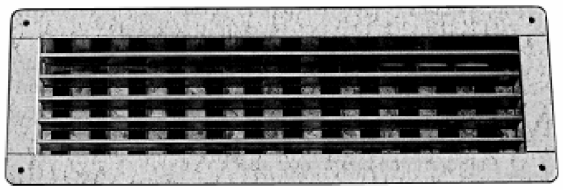
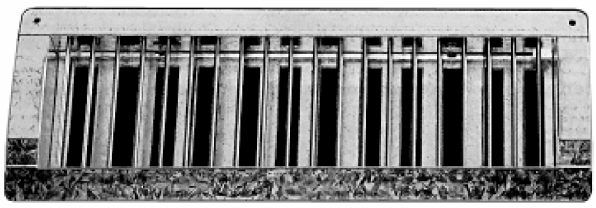
SCHAKO
KLIMA-LUFT

Compact grille
KG / KG-R





Ferdinand Schad KG
Steigstraße 25 - 27
78600 Kolbingen
Telefon (07463) 980 - 0
Telefax (07463) 980 - 200
info@schako.de

KG / KG-R

Compact grille

Contents

Description	3
Construction	4
Model	4
Accessories	4
Fixing	4
Features	4
Models and dimensions	
Dimensions	5
Accessories - dimensions	7
Installation	9
Technical data	
Pressure loss and noise level	10
Maximum end velocity	13
Air path	14
Critical throw	15
Maximum penetration	16
Induction ratio	17
Further datas	18
Legend	19
Specification texts	20

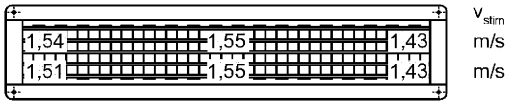
KG / KG-R

Compact grille

Description

The compact grille type KG can be used both in supply and return air installations.
Owing to the **compact design,** with front frame and blades for air ddistribution as well as the hit and miss damper for air volume control combined to form a single component, this compact design has only a **small mounting depth** . This unique small mounting depth reduces vortex formation at the hit and miss damper and thus ensures **uniform admission of air** over the entire diffuser surface (see velocity profile).
The compact design also gives the grille **maximum stability** and **torsional rigidity**.
Its special form of the compact grille ensures a flush fit to the ductwork. Modern production methods allow the grille to be manufactured **free of welding spots**, thus reducing the compact grille's susceptibility to **corrosion to a minimum**. The stainless steel version of the grille can be used in areas with aggressive air qualities. The grille is available with a **coverplate** allowing a secret fixing (VM) of the grille..
With the stainless steel and aluminium versions is the hit and miss damper delivered without raised ends.
Unless otherwise stated, the KG-Grille in galvanised sheet steel model will be supplied.

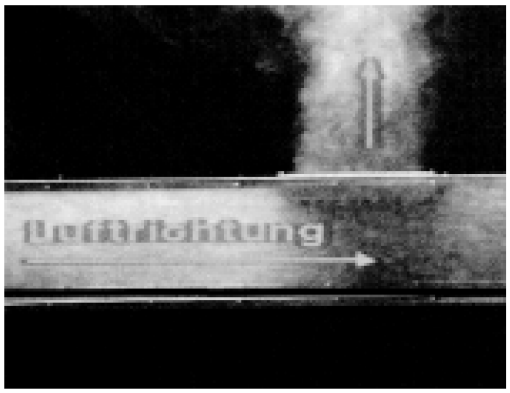
velocity profile



KG 8 615/115

exit velocity at a supply air volume V_{supp} of 400 m^3/h (ie 111.1 l/s).

Performance comparison



The picture in the flow channel proves:
- Even admission of air over the whole grille surface
- No air vortex formation

Construction

at extra cost	- anodised aluminium E6/EV1
	- stainless steel 1.4301 (V2A)
standard	- galvanised sheet steel
	- galvanised sheet steel, painted RAL 9010 (white)

KG / KG-R

Compact grille

Model

for installation in rectangular ductwork

KG 8	- horizontal blades
KG 15	- vertical blades

for installation in spiral wound ductwork

KG-R 8	- horizontal blades
KG-R 15	- vertical blades

Accessories

plenum box (-ASK)	- galvanised sheet steel
coverplate (BR)	- aluminium paint RAL 9010 (white) (only for type KG 8 / KG 15) - aluminium natural anodized E6/EV1 (only for type KG 8 / KG 15)
mounting frame (-E1)	- galvanised sheet steel

Fixing

screw fixing (-SM)	- standard
secret fixing (-VM)	- at optional extra with cover plate (only available for type KG 8 / KG 15)

Features

Attention!

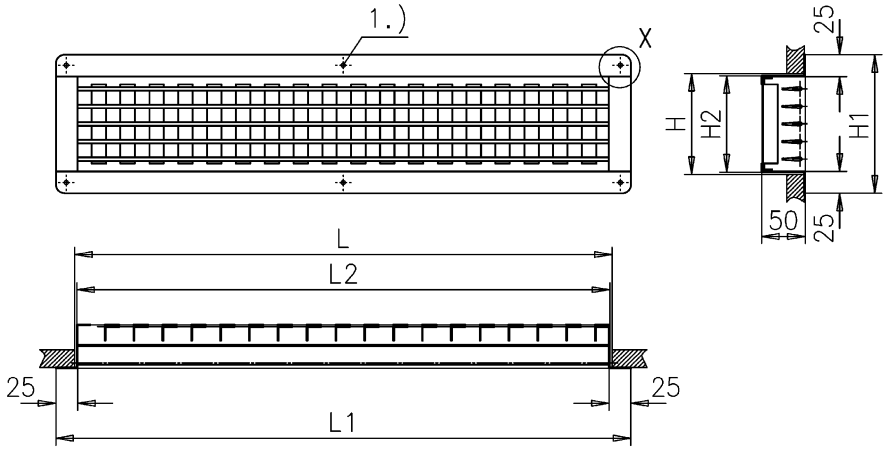
We would like to draw your attention to the fact that the stainless models are exclusively to be cleaned by using a special cleanser.

Compact grille

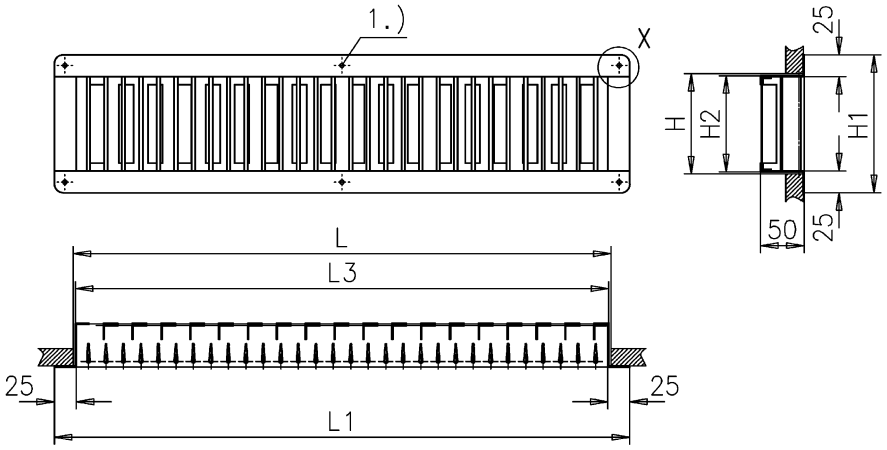
Models and dimensions

Dimensions

KG 8

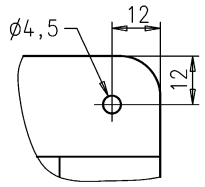


KG 15



1.) only for L = 815 up to 1215

Detail X



Available sizes

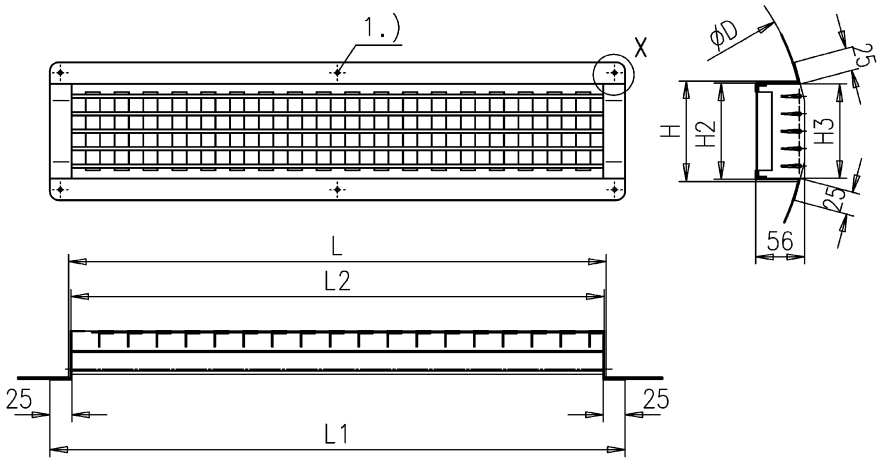
L	L1	L2	L3	H	H1	H2
315	358	312	310	**65**	108	60
415	458	412	410			
515	558	512	510	**115**	158	110
615	658	612	610			
815	858	812	810	**215**	258	210
1015	1058	1012	1010	**315**	358	310
1215	1258	1212	1210			

All combined lengths and heights are available.
Special sizes are not possible.

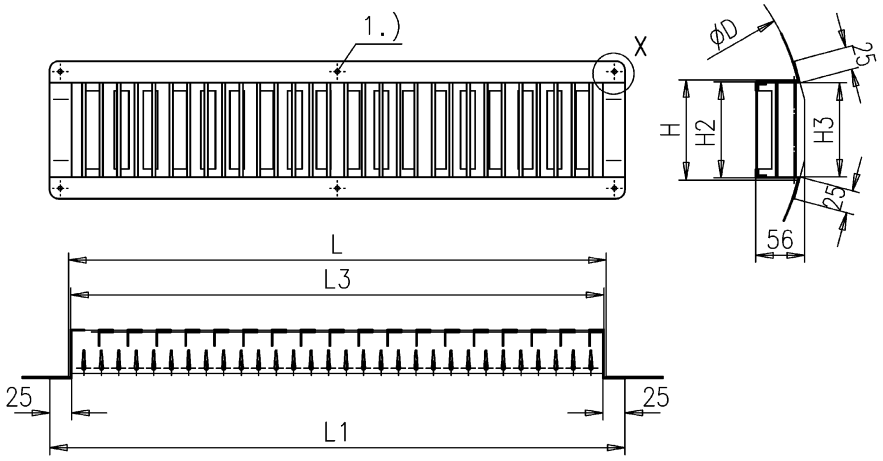
KG / KG-R

Compact grille

KG-R 8

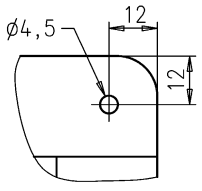


KG-R 15



1.) only for L = 815 up to 1215

Detail X



Available sizes

L	L1	L2	L3	H	H2	H3
315	358	312	310	**65**	60	58
415	458	412	410			
515	558	512	510	**115**	110	108
615	658	612	610			
815	858	812	810	**215**	210	208
1015	1058	1012	1010	**315**	310	308
1215	1258	1212	1210			

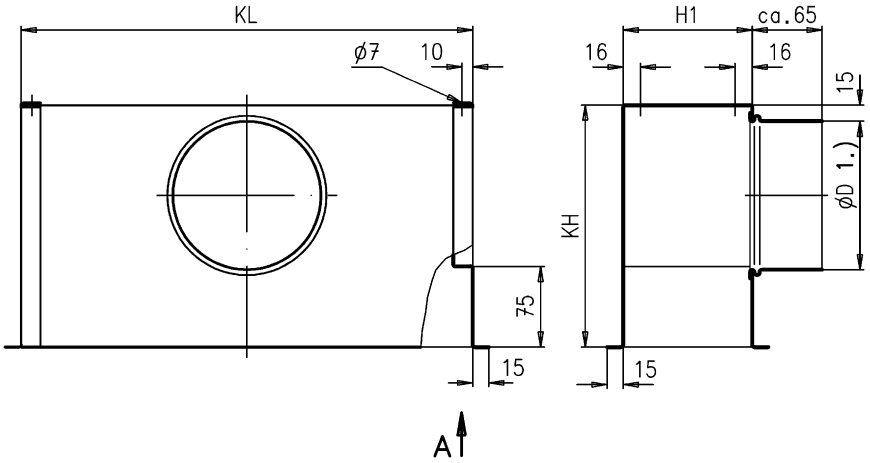
All combined lengths and heights are available.
Special sizes are not possible.

KG / KG-R

Compact grille

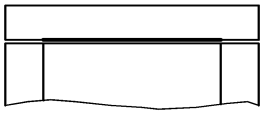
Accessories - dimensions

Plenum box (-ASK) for KG



1.) extern

View A (drawn at 90°)
standard



Available sizes

L	H	KL	H1	KH	øD
315		320		210	123
415		420		210	123
515		520		210	123
615	**65**	620	68	210	123
815		820		245	158
1015		1020		245	158
1215		1220		245	158

L	H	KL	H1	KH	øD
315		320		245	158
415		420		245	158
515		520		245	158
615	**115**	620	118	245	158
815		820		285	198
1015		1020		285	198
1215		1220		285	198

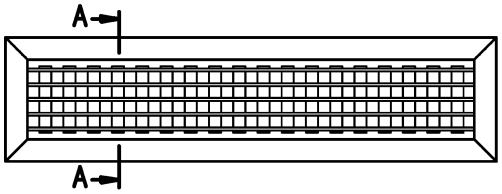
L	H	KL	H1	KH	øD
315		320		285	198
415		420		285	198
515		520		285	198
615	**215**	620	218	335	248
815		820		335	248
1015		1020		335	248
1215		1220		335	248

L	H	KL	H1	KH	øD
315		320		335	248
415		420		335	248
515		520		335	248
615	**315**	620	318	400	313
815		820		400	313
1015		1020		400	313
1215		1220		400	313

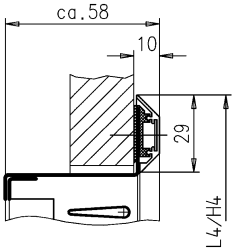
KG / KG-R

Compact grille

Coverplate (BR)



Section A-A



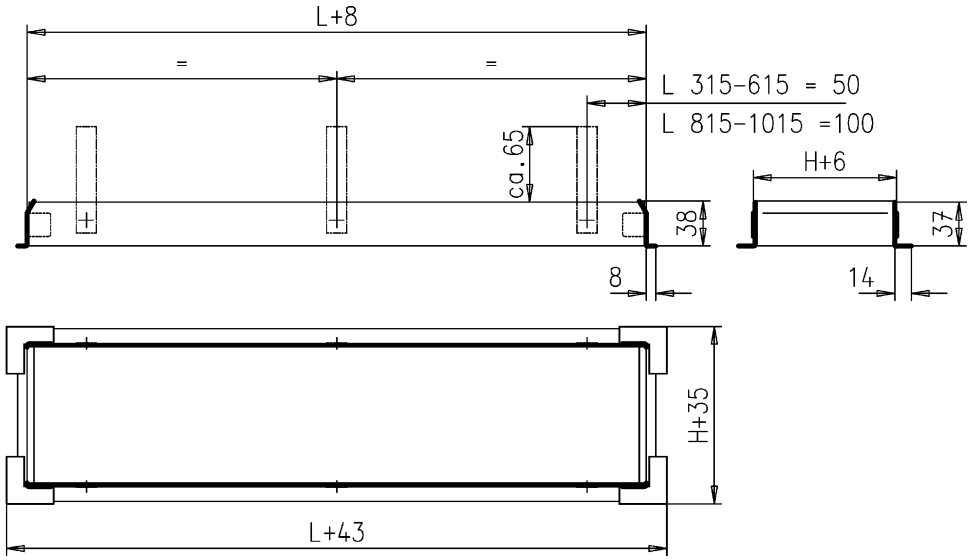
A coverplate is only available for type KG 8 and KG 15!
A coverplate has been developed to allow a secret fixing (VM). This simply clips onto the top frame of the grille flange. This can also be easily done on grilles which have already been installed.

Available sizes

L	L4	H	H4
315	368	**65**	116
415	468		
515	568	**115**	168
615	668		
815	868	**215**	268
1015	1068	**315**	368
1215	1268		

All lengths and hights combinable!

Mounting frame for KG 8 / KG 15



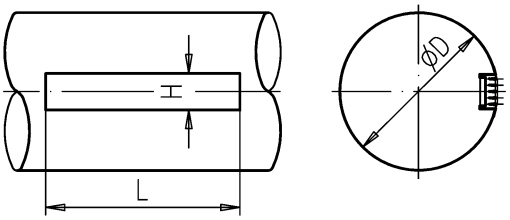
length L less than or equal to 825mm - 4 wall brackets
length L greater than or equal to 825mm - 6 wall brackets
the aforementioned models are galvanised sheet steel
the mounting frame is only delivered (at extra cost) with wall brackets on special request.

KG / KG-R

compact grille

Installation

Mounting for KG-R



Duct diameter

KG-R	øD		
H	min.	i	max.
65	140	250	400
115	300	500	800
215	600	750	1250
315	900	1000	1250

i = ideal

Dimensions:

- sheet steel / stainless steel: L x H
- aluminium: (L + 10) x (H + 10)

The curved flange of this model KG-R enables an optimal flush fitting to exposed spiral wound ductwork. Please look at the table to ensure the height of the grille is compatible with the duct diameter to ensure a good fit. The grille only lies completely flush at the ideal duct diameter.

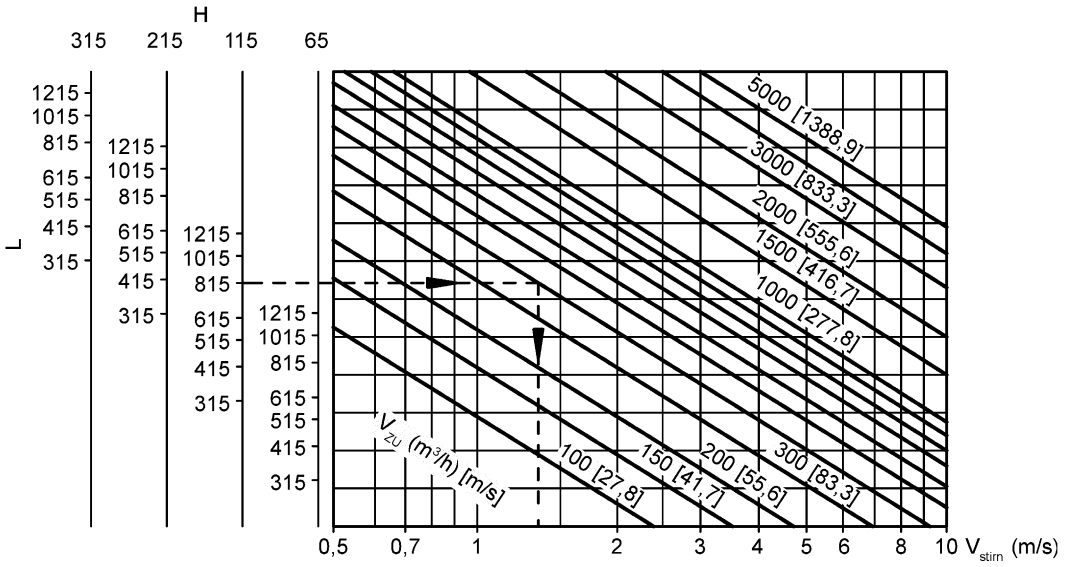
KG / KG-R

Compact grille

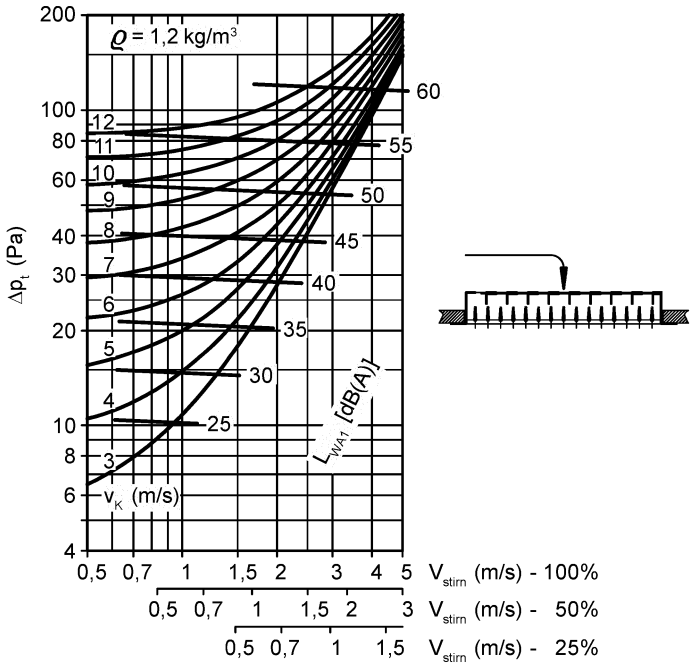
Technical data

Pressure loss and noise level

supply air face velocity



Supply air

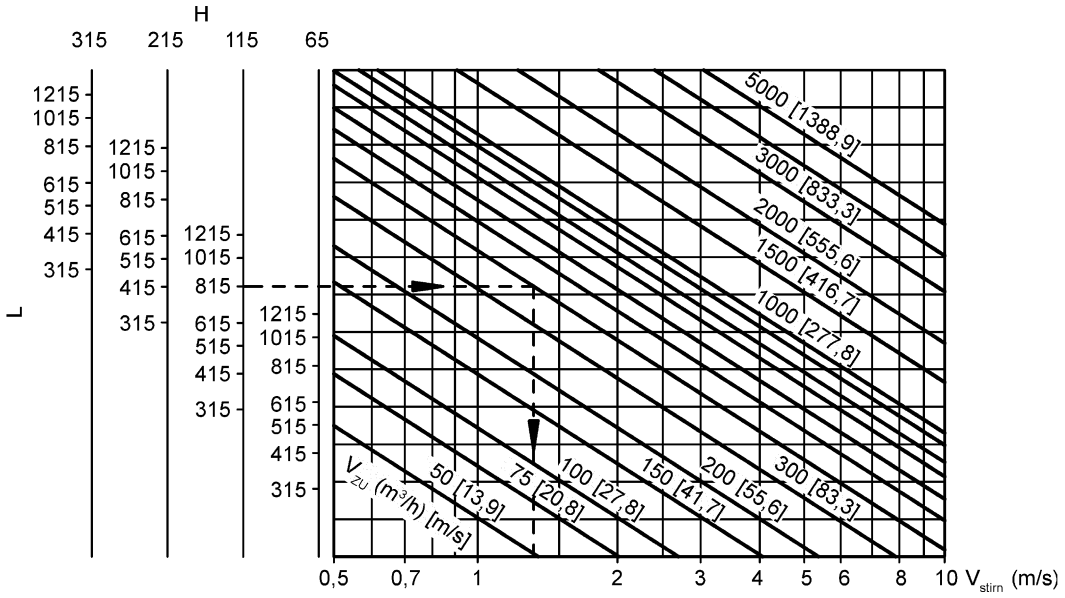


hit and miss damper position (open %)

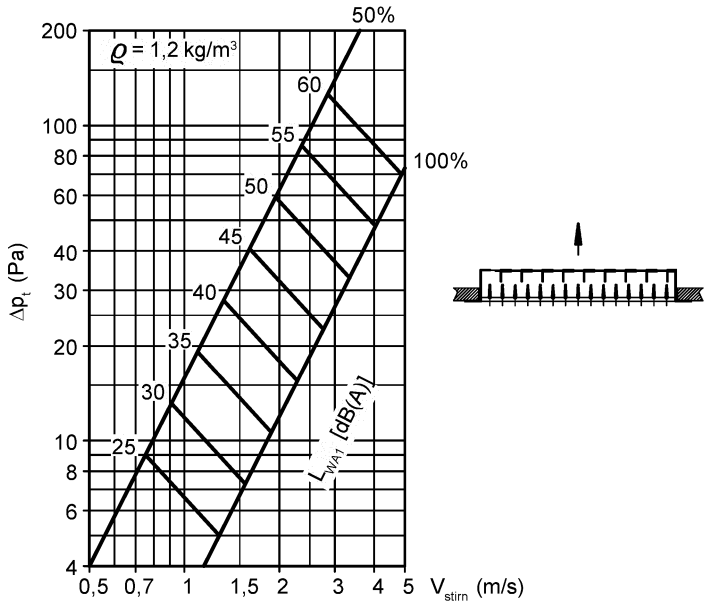
KG / KG-R

Compact grille

Extract air face velocity



Extract air



hit and miss damper position (open %)

Details of type KG grille.
Free area in m² at the damper.

H \ L	315	415	515	615	815	1015	1215
65	0,0067	0,0090	0,0120	0,0135	0,0180	0,0225	0,0270
115	0,0135	0,0180	0,0240	0,0270	0,0360	0,0450	0,0540
215	0,0270	0,0360	0,0480	0,0540	0,0720	0,0900	0,1080
315	0,0405	0,0540	0,0720	0,0810	0,1080	0,1349	0,1619

KG / KG-R

Compact grille

Face area (m²)
Supply and extract air

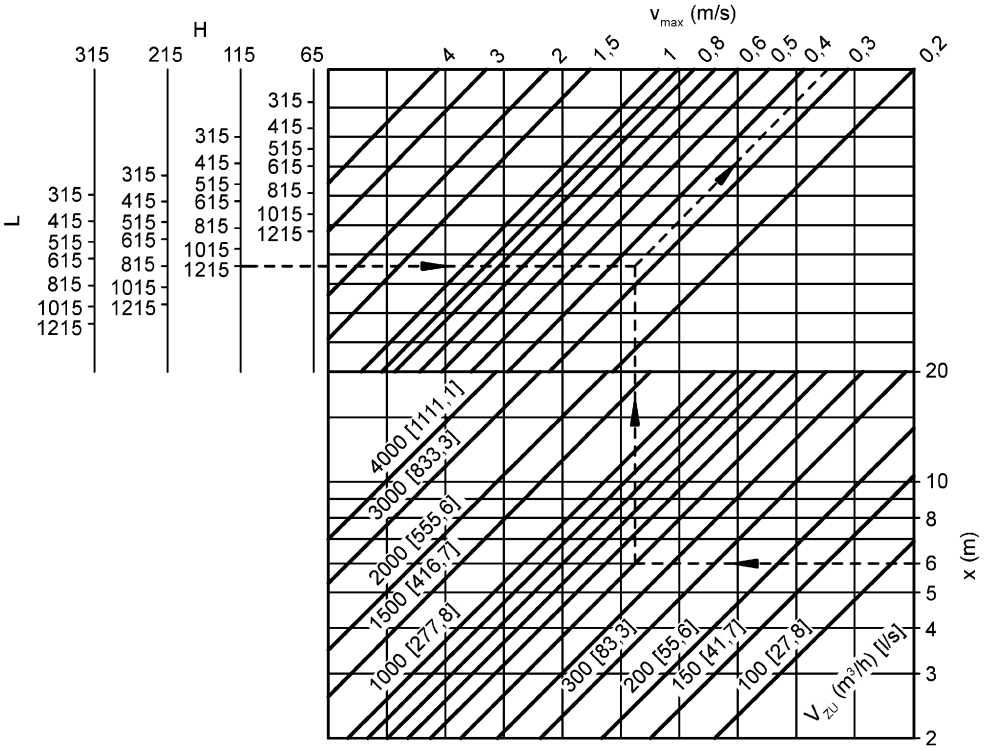
H	L						
	315	415	515	615	815	1015	1215
65	0,018	0,024	0,029	0,035	0,047	0,058	0,070
115	0,033	0,044	0,055	0,066	0,087	0,109	0,130
215	0,064	0,085	0,106	0,126	0,168	0,210	0,251
315	0,095	0,126	0,156	0,187	0,249	0,310	0,372
	A_{stirn} (m²)						

Correction factor
Supply and extract air

A_{stirn} (m²)	0,01	0,02	0,04	0,08	0,16	0,32	0,40
KF (-)	- 9	- 6	- 3	0	+ 3	+ 6	+ 7

Maximum end velocity

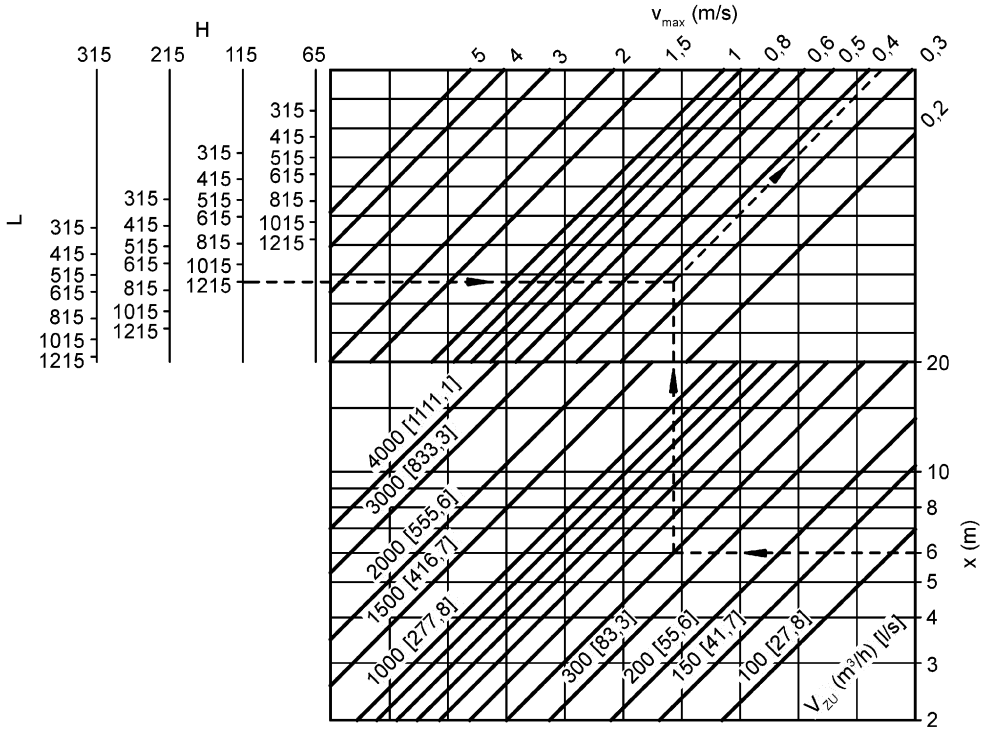
supply air without coanda effect



KG / KG-R

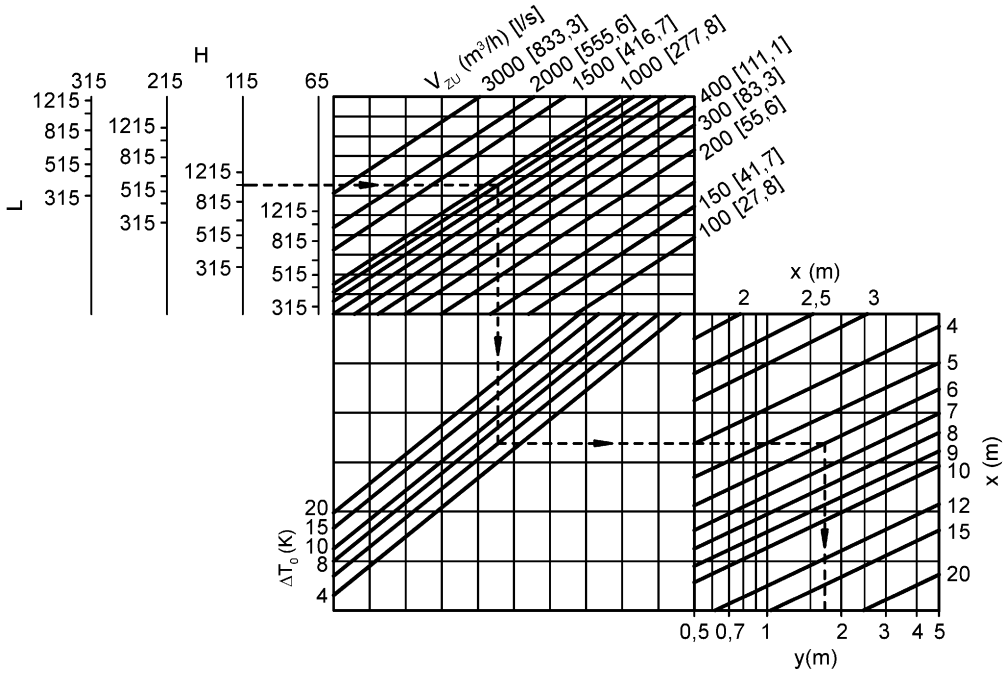
Compact grille

supply air with coanda effect



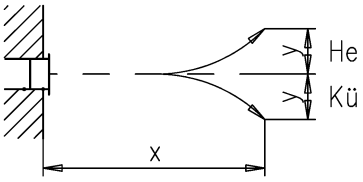
Air path

supply air without coanda effect



KG / KG-R

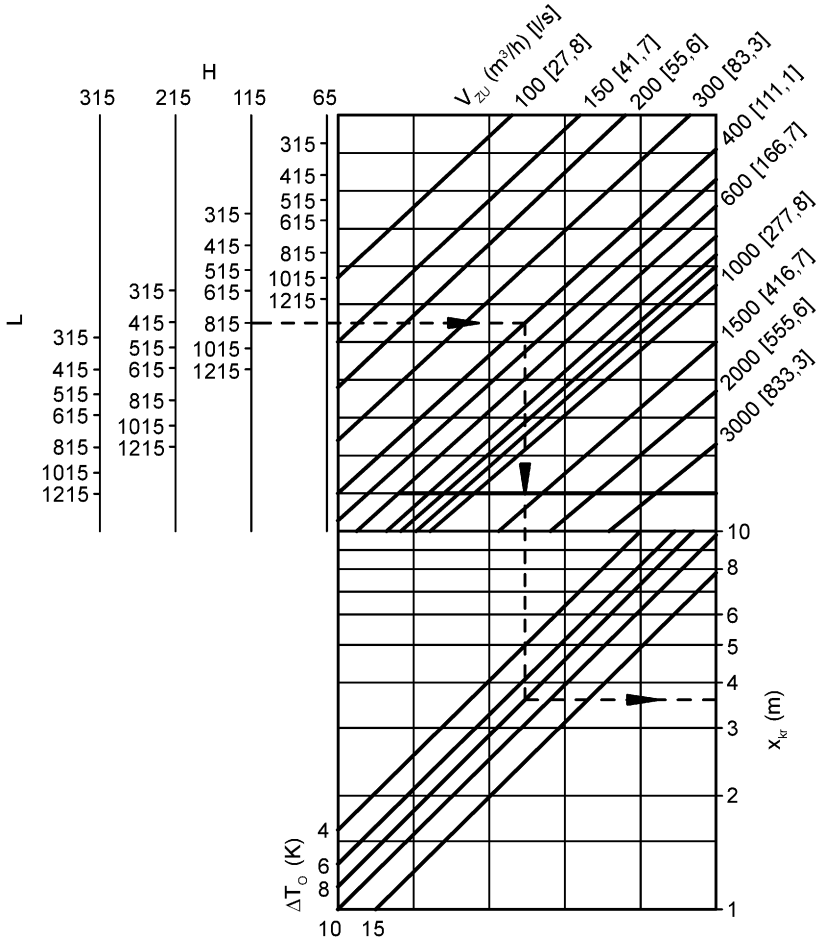
Compact grille



He = heating
Ku = cooling

Critical throw

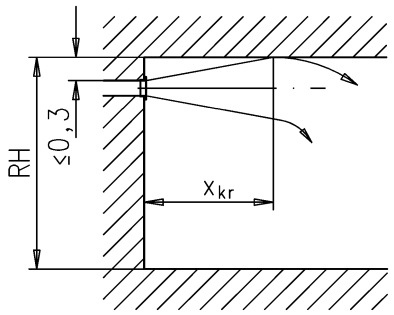
supply air with coanda effect



KG / KG-R

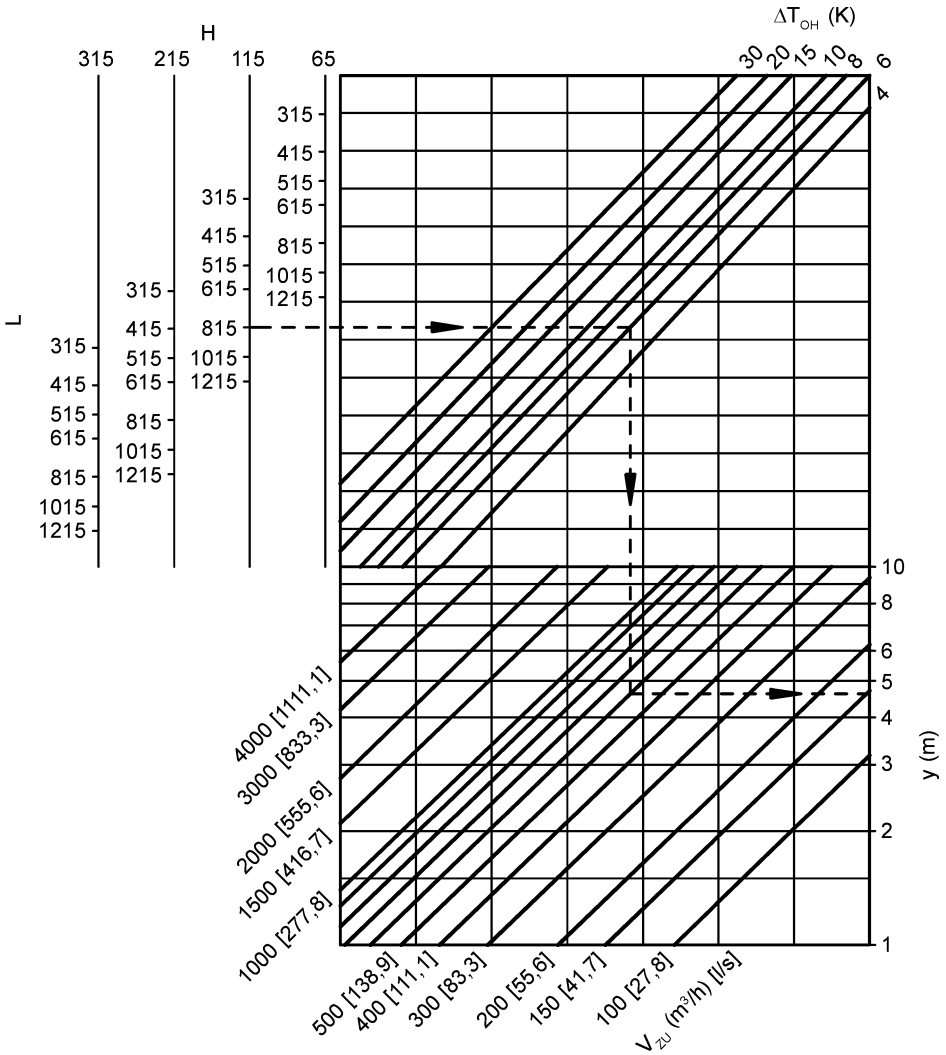
Compact grille

Throw



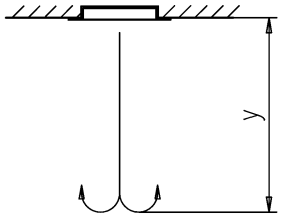
Maximum penetration

Max. vertical throw (heating):



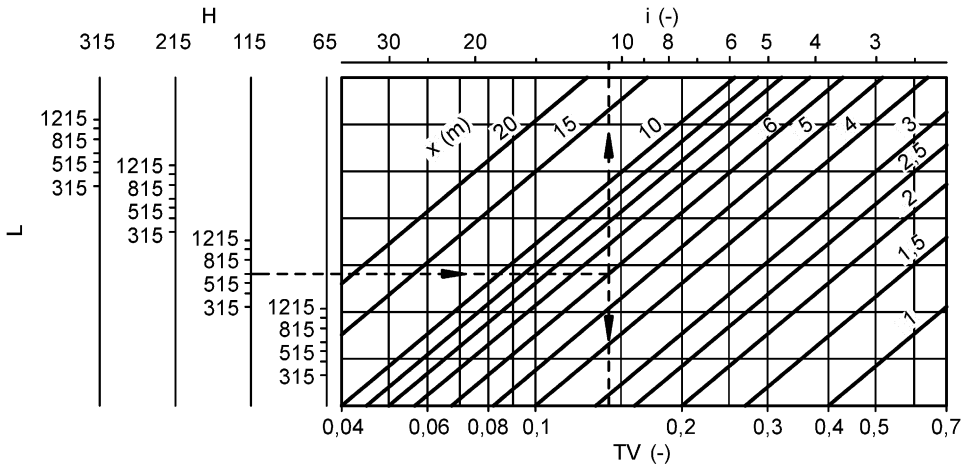
KG / KG-R

Compact grille

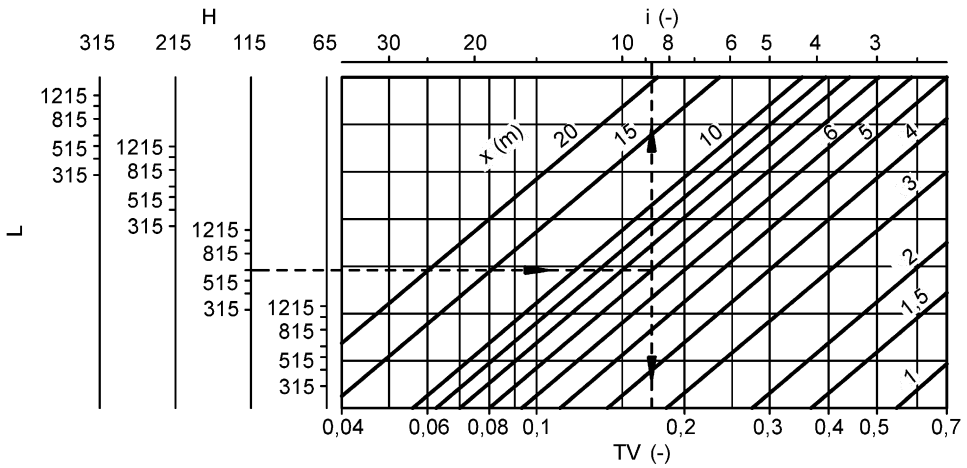


Induction ratio

supply air without coanda effect



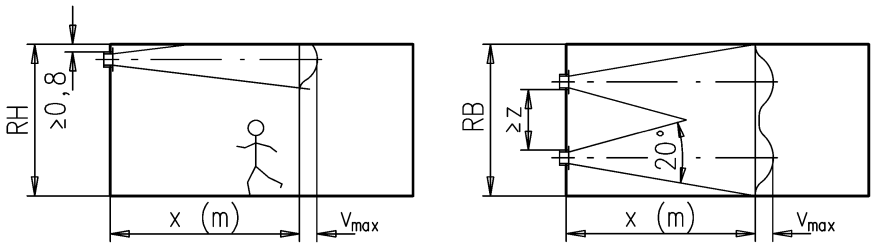
supply air with coanda effect



Compact grille

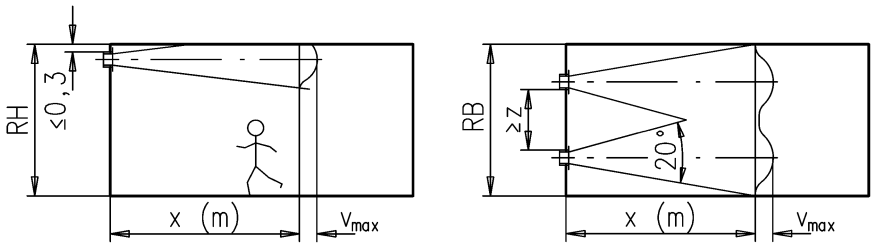
Further datas

Minimum distance apart:
supply air without coanda effect



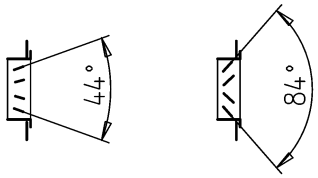
The distance z between two grilles must be greater than or equal to x(m) x 0,2 for the diagrams to be correct.

Supply air with coanda effect



The distance z between two grilles must be greater than or equal to x(m) x 0,2 for the diagrams to be correct.

Correction factor (for diverted jet)

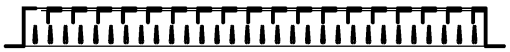


Blade position	**44 °**	**84 °**
jet velocity	v_{max} (m/s) x 0,65	v_{max} (m/s) x 0,5
TV ΔT_z / ΔT_o	x 0,65	x 0,5
induction ratio	i x 1,3	i x 2
jet drop / rise	y x 1,3	y x 2
grille distance z(m) >	x x 0,20	y x 0,25

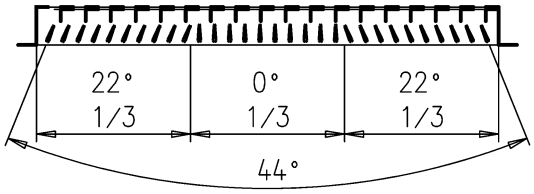
KG / KG-R

compact grille

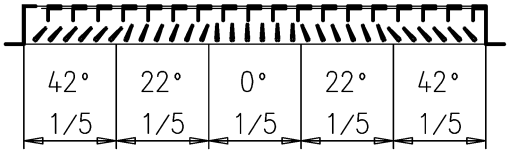
Special blade settings for grille type KG 15 and type KG-R 15
Blades set straight



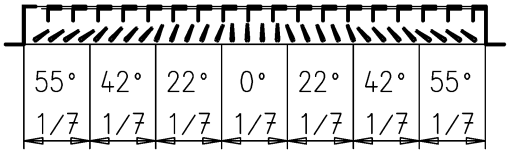
Blades set at 44° (diverging)



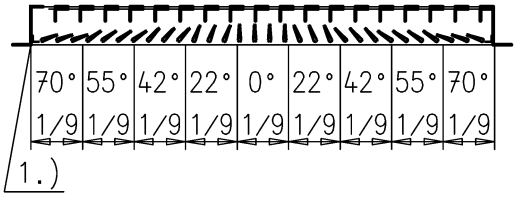
Blade postion 84° diverging



Blade position 110° diverging



Blade position 140° diverging

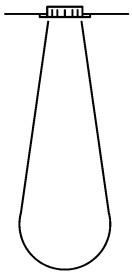


Blade position set against each other

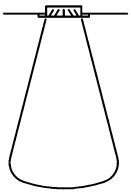
1.) first and last slot covered

The throw can be altered by adjusting the vertical blades

Blades set straight



Blades set diverging



KG / KG-R

Compact grille

legend

V_{supp} (m^3/h) = supply air volume
V_{supp} (l/s) = supply air volume
V_{ext} (m^3/h) = exhaust air volume
V_{ext} (l/s) = exhaust air volume
V_{max} (m/s) = maximum end velocity
v_k (m/s) = duct velocity
v_{face} (m/s) = velocity relative to A_{face}
A_{face} (m^2) = face area
x (m) = horizontal throw
y (m) = vertical throw
x_{cr} (m/s) = critical throw
p (kg/m^3) = density
Δp_1 (Pa) = pressure loss
L_{WA} [dB(A)] = a weighted sound power level
L_{WAf} [dB(A)] = a weighted sound power level relative to A_{face} = 0,08 m^2
KF (-) = correction factor
ΔT_o (K) = temperature difference between supply and room air temperature
($\Delta T_o = t_{supp} - t_{room}$)
ΔT_{oH} (K) = temperature difference between supply and room air temperature (heating)
($\Delta T_{oH} = t_{suppH} - t_{room}$)
ΔT_x (K) = temperature ratio at point x
t_{supp} (°C) = supply air temperature
t_{room} (°C) = room temperature
i (-) = induction ratio
TV (-) = temperature ratio
z (m) = minimum distance between two grilles x (m) x 0,2
H (mm) = height
L (mm) = length

KG / KG-R

compact grille

specification texts

Compact grille **type KG 8** for supply and extract air in rectangular ductwork. Front frame with visible screw fixing (SM) with adjustable blades and integrated hit and miss damper.
Manufacturer : SCHAKO **type KG 8**

- **type KG 15** with adjustable vertical blades
  Manufacturer: SCHAKO **type KG 15**

- compact grille made from:
  - galvanised sheet steel
  - galvanised sheet steel, front painted (white) RAL 9010
  - anodised aluminium E6/EV 1
  - stainless steel V2A, DIN 1.4301

Accesories:

- with plenum box (-ASK) made from galvanised sheet steel

- with cover plate (-BR) for secret fixing (VM) made from
  - anodised aluminium E6/EV1
  - RAL painted aluminium 9010 (white)

- with mounting frame (-E1) from galvanised sheet steel

Compact grille type **KG-R 8** for supply and extract air for exposed spiral wound ductwork. Front frame with visible screw fixing (SM) with adjustable horizontal blades and integrated hit and miss damper.

Manufacturer: SCHAKO **type KG-R 8**

- type KG-R 15, with adjustable vertical blades.
  Manufacturer: SCHAKO **type KG-R 15**

- compact grille made from
  - galvanised sheet steel
  - galvanised sheet steel, face painted (white) RAL 9010
  - anodised aluminium E6/EV1
  - stainless steel V2A, DIN 1.4301