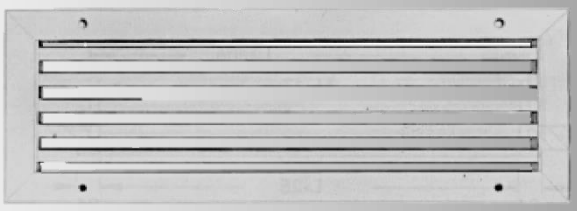
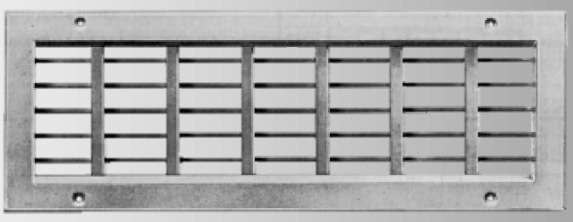
Technical documentation





BSG

Ball-Impact-Resistant Grilles

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SCHAKO KG
Steigstrasse 25-27
D-78600 Kolbingen

Phone +49 (0) 7463-980-0
schako.com | info@schako.de

FUNCTION AND USE

The ball-impact-resistant grille BSG-N, **for supply and return air, with horizontal, fixed profile bars at the front, is suitable for installation in gymnasiums and sports halls**, as it is ball-impact-resistant in accordance with DIN 180 32 Part 3. For installation below a height of 2 m, the profile spacing must not exceed 8 mm. Please specify, when ordering.

The ball-impact-resistant grille BSG-S, **for supply and return air, with horizontal, fixed profile bars at the front and pivoting horizontal air deflection blades, is suitable for installation in gymnasiums and sports halls**, as it is ball-impact-resistant in accordance with DIN 180 32 Part 3. Installation is only approved above a height of 2 m!

At an extra charge, a plenum box can be mounted. The damper in the spigot of the plenum box (at an extra charge) serves for easy air volume regulation.

MODELS

BSG-N-...	with horizontal, fixed profile bars at the front
WBSG-S-...	with vertical, fixed profile bars at the front and pivoting horizontal air deflection blades
BSG-...-ST-...	standard profile bar spacing
BSG-...-08-...	profile bar spacing 8 mm (only for BSG-N version: required for ball impact safety in accordance with DIN 18032, Part 3 and simultaneous installation below 2 m)
BSG-...-N-...	single design

MOUNTING

-- Screw mounting (-SM, standard)
  - screws must be provided on site

PROCESSING

Frame

-- sheet steel (-SB, standard):
  - painted in RAL colour 9010 (white) (-9010, standard for -SB model)
  - painted in a freely selectable RAL colour (-xxxx, always with 4 digits) (at an extra charge).

-- Aluminium (-AL):
  - natural colour anodised (E6/EV1) (-ELOX, standard for -AL model)
  - painted to RAL colour 9010 (white) (-9010)
  - painted in a freely selectable RAL colour (-xxxx, always with 4 digits) (at an extra charge).

Blades (profile bars)

-- rectangular profile in the same material and colour as the frame.

Air deflection blades (for BSG-S)

-- sheet steel (for -SB model), in the same colour as the frame.

-- extruded aluminium profile (for -AL model), in the same colour as the frame.

ACCESSORIES

Plenum box (-AK-40)

Rectangular design, made of galvanised sheet steel (-SV, standard), housing with round connection spigot and mounting brackets.

-- Length:
  - grille length L = 325 mm (-00325)
  - grille length L = 425 mm (-00425)
  - grille length L = 525 mm (-00525)
  - grille length L = 625 mm (-00625)
  - grille length L = 825 mm (-00825)
  - grille length L = 1025 mm (-01025)
  - grille length L = 1225 mm (-01225)

-- Height:
  - grille height H = 125 mm (-125)
  - grille height H = 225 mm (-225)
  - grille height H = 325 mm (-325)

-- Single / band design:
  - Single design (-N) (standard)

-- Mounting:
  - screw mounting (standard, screws must be provided on site) (-SM)

-- Damper:
  - without damper (-DK0) (standard)
  - with damper (-DK1), in the plenum box housing, adjustable, for simple air volume regulation (standard with spigot position -S1), made of galvanised sheet steel.
  - with damper (-DK2), with cable-operated adjustment, in the connection spigot, adjustable, for simple air volume regulation (standard with spigot positions -S0/-S4), made of galvanised sheet steel.

-- Rubber lip seal:
  - without rubber lip seal (-GD0) (standard)
  - with rubber lip seal (-GD1) made of special rubber, at the connection spigot.

-- Insulation:
  - without insulation (-I0) (standard)
  - with internal insulation (-Ii), thermal insulation inside the plenum box.
  - with external insulation (-Ia), thermal insulation at the outside of the plenum box.
-- Height of box:
  - Standard height of box (-KHS)
  - height of plenum box in mm, freely selectable (-xxx) (minimum height [KHS] with spigot positions -S1 and -S4 = spigot diameter + 87 mm, but at least 200 mm) (always with 3 digits).
-- Spigot diameter:
  - standard spigot diameter (-SDS)
  - spigot diameter in mm, freely selectable (-xxx, always with 3 digits) (with spigot positions -S0 and -S4, if the spigot diameter is increased, only the offset plenum box shape is available).
-- Spigot position:
  - spigot from above (-S0)
  - Lateral spigot on the box (-S1) (standard)
  - spigot front side (-S4)

Installation frame (-ER0 / -ER1 / -ER2)

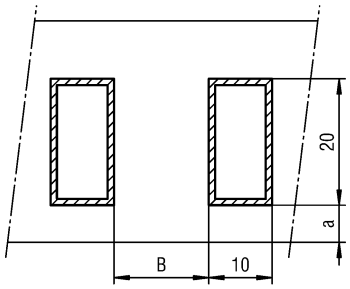
-- without installation frame (-ER0)
-- with installation frame made of galvanised sheet steel (only possible without plenum box):
  - without wall anchors (-ER1)
  - with wall anchors (-ER2)

Hit-and-miss damper (-SN/-SS)

-- without hit-and-miss damper (-SN, standard)
- with hit-and-miss damper (-SS) for volumetric flow adjustment, adjustable on the room-facing side, made of galvanised sheet steel.

BLADE PROFILE

Profile bar spacing



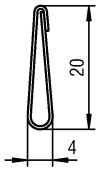
Profile bar spacing	BSG-N-...			BSG-S-...		
	B (mm)	a (mm) -SB	a (mm) -AL	B (mm)	a (mm) -SB	a (mm) -AL
-ST (Standard)	15	0	0	50	ap-prox. 6	0
-08	8 1.)			--		

1.) Required for ball impact resistance according to DIN 18032, Part 3, and simultaneous installation below 2 m.

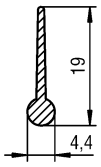
Air deflection blade (individually adjustable)

(only for BSG-S-...)

-SB model

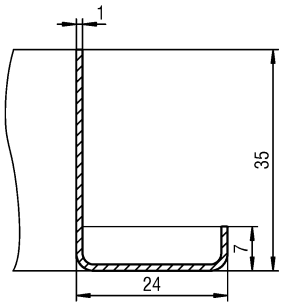


-AL model

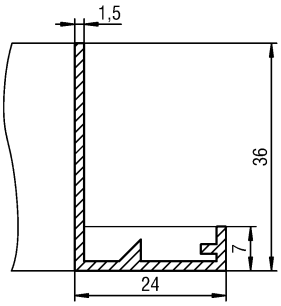


FRAME PROFILE

-SB model



-AL model

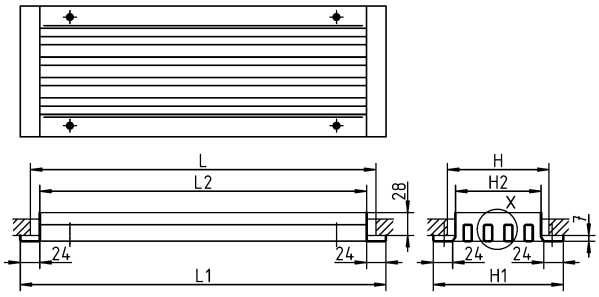


DIMENSIONS

Single design (-N) / sheet steel (-SB)

With horizontal, fixed profile bars at the front (-N)

without hit-and-miss damper (-SN)
BSG-N-…-N-SB-…-SN

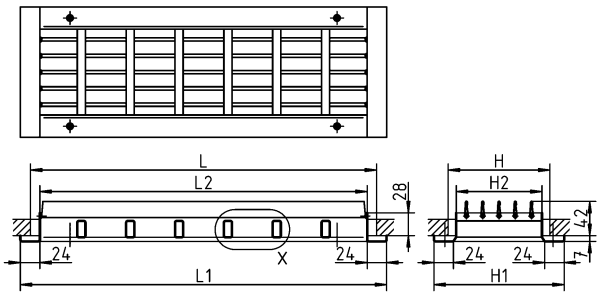


with hit-and-miss damper (-SS)
BSG-N-…-N-SB-…-SS

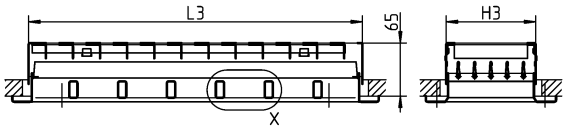


With vertical, fixed profile bars at the front and pivoting horizontal air deflection blades (-S)

without hit-and-miss damper (-SN)
BSG-S-…-N-SB-…-SN



with hit-and-miss damper (-SS)
BSG-S-…-N-SB-…-SS



Available sizes BSG-N-…-N-SB-… / BSG-S-…-N-SB-…

L	L1	L2	L3
325	350	304	310
425	450	404	410
525	550	504	510
625	650	604	610
825	850	804	810
1025	1050	1004	1010
1225	1250	1204	1210

H	H1	H2	H3
125	160	104	112
225	260	204	212
325	360	304	312

All combined lengths and heights available.

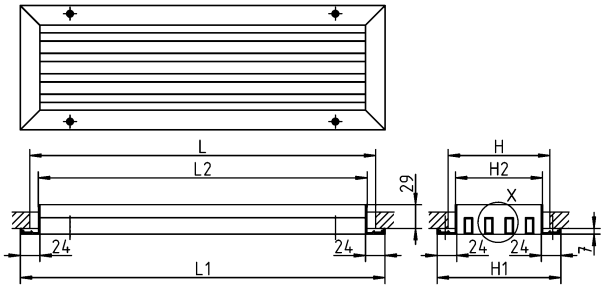
Please specify profile spacing when ordering!
Without specification, the -ST profile blade spacing version will be supplied.
BSG-S-… model only available with -ST profile blade spacing.

Profile blade spacing: see page 3 for detail X.
Mounting options: for screw mounting (-SM), see page 9.

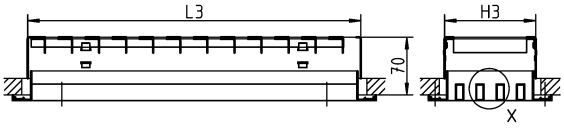
Single design (-N) / aluminium (-AL)

With horizontal, fixed profile bars at the front (-N)

without hit-and-miss damper (-SN)
BSG-N-…-N-AL-…-SN

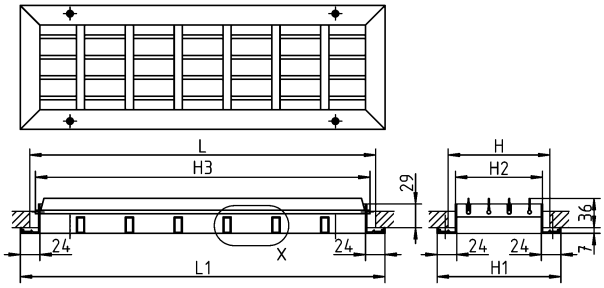


with hit-and-miss damper (-SS)
BSG-N-…-N-AL-…-SS

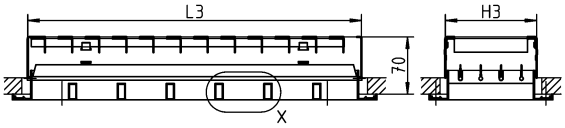


With vertical, fixed profile bars at the front and pivoting horizontal air deflection blades (-S)

without hit-and-miss damper (-SN)
BSG-S-…-N-AL-…-SN



with hit-and-miss damper (-SS)
BSG-S-…-N-AL-…-SS



Available sizes BSG-N-…-N-AL-… / BSG-S-…-N-AL-...

L	L1	L2	L3
325	348	303	310
425	448	403	410
525	548	503	510
625	648	603	610
825	848	803	810
1025	1048	1003	1010
1225	1248	1203	1210

H	H1	H2	H3
125	152	107	112
225	252	207	212
325	352	307	312

All combined lengths and heights available.

Please specify profile spacing when ordering!
Without specification, the -ST profile blade spacing version will be supplied.
BSG-S-… model only available with -ST profile blade spacing.

Profile blade spacing: see page 3 for detail X.
Mounting options: for screw mounting (-SM), see page 9.

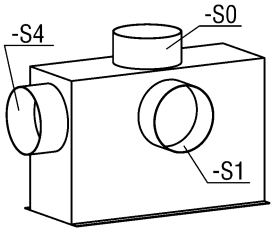
DIMENSIONS OF ACCESSORIES

Plenum box (-AK-40)

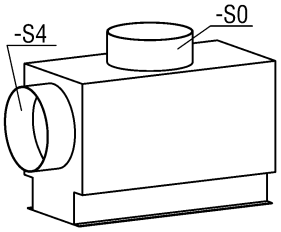
SINGLE DESIGN (-N)

Spigot position

Straight plenum box:



Offset plenum box:

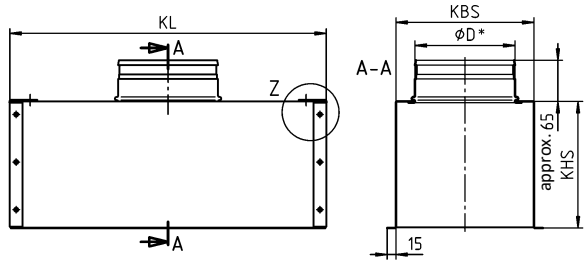


- Lateral spigot on the box (-S1, standard)
- Spigot from above (-S0)
- Front side spigot (-S4, not possible for band design)

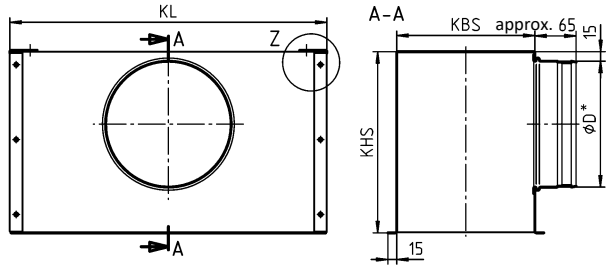
Spigot diameter for spigot position “Spigot front side (-S4)” is **identical** with “Lateral spigot on the box (-S1)”.
Spigot diameter for spigot position “Spigot from above (-S0)” is **in part not identical** with “Lateral spigot on the box (-S1)”.
For the table of available sizes, see page 7.

Straight plenum box:

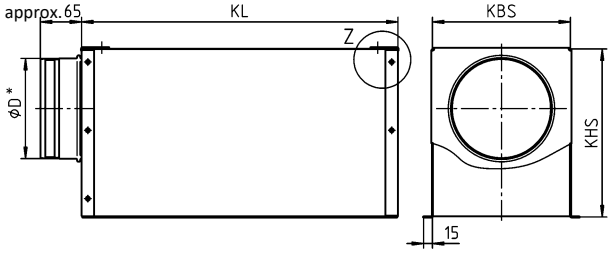
with spigot from above (-S0)



with lateral spigot on the plenum box (-S1)



with spigot front side (-S4)

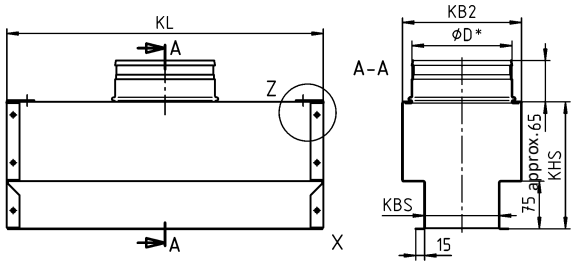


* external

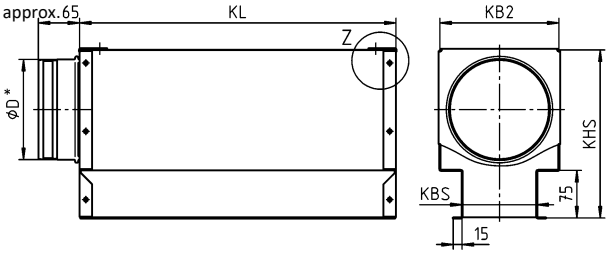
Offset plenum box:

If KBS is < (øD+30), an offset plenum box will be manufactured.
For -S0 / -S4 models: KB2 = øD+30
Minimum difference between KBS and KB2 = 40 mm.

with spigot from above (-S0)



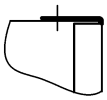
with spigot front side (-S4)



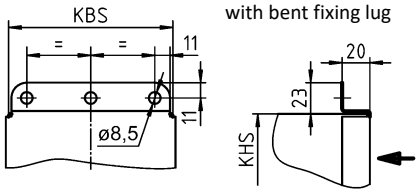
* external

Plenum box mounting:

Detail Z
As-delivered condition with fitted mounting bracket



Detail Z
with bent fixing lug



Minimum height KHS with spigot position -S1 / -S4:
KHS $_{min.}$ = øD + 87 mm, but at least 200 mm

Minimum width KB2 with spigot position -S0 / -S4:
KB2 $_{min.}$ = øD + 30 mm
Minimum difference between KBS and KB2 = 40 mm.

The dimension KBS cannot be changed.
With spigot positions -S0 and -S4, if the spigot diameter is increased, only the offset plenum box shape is available.

Available sizes AK-40 (for BSG-…)

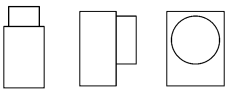
H	KBS	L	KL	Spigot position -S1 (standard)				Spigot position -S0				Spigot position -S4			
				KHS	KB2	n x øD	Plenum box shape	KHS	KB2	n x øD	Plenum box shape	KHS	KB2	n x øD	Plenum box shape
125	118	325	320	265	--	1x ø158		200	158	1x ø98		265	188	1x ø158	
		425	420							2x ø98					
		525	520												
		625	620												
		825	820	285	--	1x ø198				4x ø98		285	228	1x ø198	
		1025	1020												
		1225	1220												
225	218	325	320	285	--	1x ø198		200	258	1x ø198		285	258	1x ø198	
		425	420												
		525	520												
		625	620	335	--	1x ø248			--	2x ø178		335	278	1x ø248	
		825	820												
		1025	1020												
		1225	1220												
325	318	325	320	335	--	1x ø248		200	--	1x ø248		335	--	1x ø248	
		425	420												
		525	520												
		625	620	400	--	1x ø313			--	2x ø222		400	358	1x ø313	
		825	820												
		1025	1020												
		1225	1220												

n = number of spigots

Plenum box shape

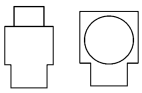
Straight:

-S0 **-S1** **-S4**



Offset:

-S0 **-S4**



Minimum height KHS with spigot position -S1 / -S4:
$KHS_{min.}$ = øD + 87 mm, but at least 200 mm

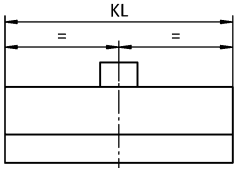
Minimum width KB2 with spigot position -S0 / -S4:
$KB2_{min.}$ = øD + 30 mm
Minimum difference between KBS and KB2 = 40 mm.

The dimension KBS cannot be changed.
With spigot positions -S0 and -S4, if the spigot diameter is increased, only the offset plenum box shape is available.

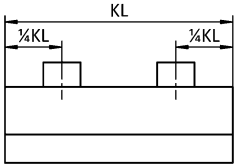
Number of spigots:

Spigot from above (-S0)

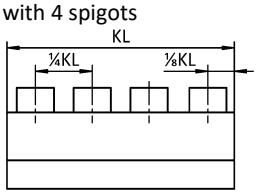
with 1 spigot



with 2 spigots



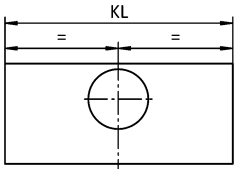
with 4 spigots



Lateral spigot (-S1)

(standard)

with 1 spigot



Spigot front side (-S4)

Band design not possible.

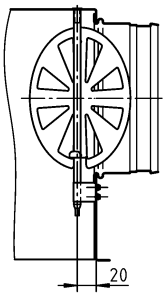
with 1 spigot



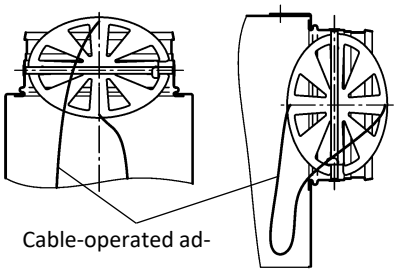
Damper (-DK0 / -DK1 / -DK2), for AK-…

-- without damper (-DK0) (standard)
-- with damper (-DK1) (standard for spigot position -S1)
-- with damper and cable-operated adjustment (-DK2) (standard for spigot position -S0/-S4)

-DK1:
Lateral spigot -S1



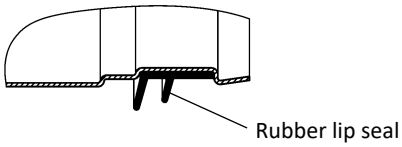
-DK2 (with cable-operated adjustment):
spigot from above -S0 spigot front side -S4



Rubber lip seal (-GD0 / -GD1), for AK-…

-- without rubber lip seal (-GD0) (standard)
-- with rubber lip seal (-GD1), made of special rubber.

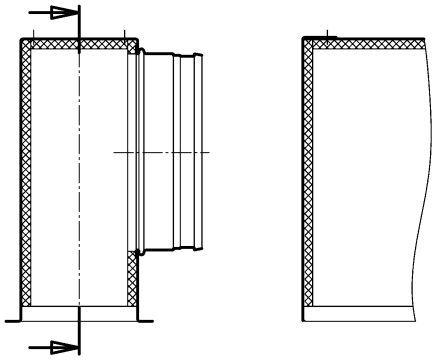
Detail Y



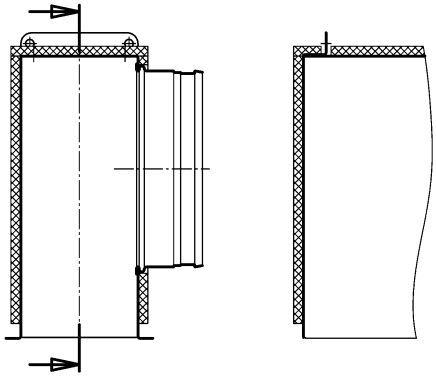
Insulation (-I0 / -Ii / -Ia), for AK-…

-- without insulation (-I0) (standard)
-- with internal insulation (-Ii)
-- with external insulation (-Ia)

Internal insulation (-Ii)



External insulation (-Ia)

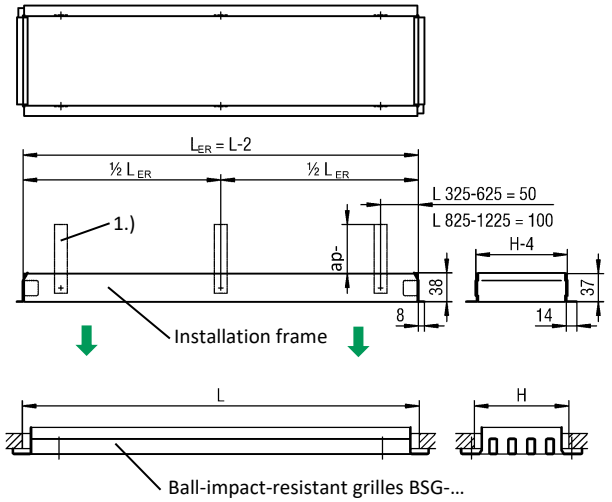


Installation frame (-ER0 / -ER1 / -ER2)

-- without installation frame (-ER0) (standard)
-- with installation frame without wall anchors (-ER1)
-- with installation frame with wall anchors (-ER2)

The installation frame is only possible without plenum box.

SINGLE DESIGN (-N)



Length L ≤ 825 mm = 4 wall anchors
Length L > 825 mm = 6 wall anchors

Installation frame made of electrolytically galvanised sheet steel.
The installation frame is only delivered with wall anchors on special request (-ER2, at an extra charge).

L = Length
L_{ER} = installation frame length (L_{ER} = L-2)
1.) Wall anchor

MOUNTING OPTIONS

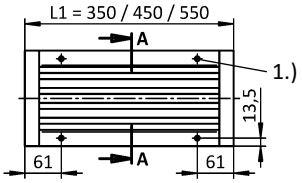
Screw mounting (-SM, standard)

The BSG ball-impact-resistant grille is only supplied with screw mounting (-SM). Screws must be provided on site.

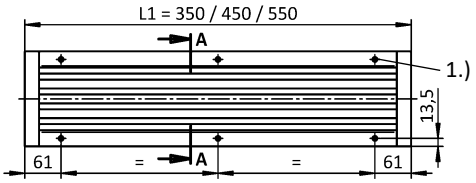
Single design (-N) / sheet steel (-SB)

BSG-N-...-N-SB-... / BSG-S-...-N-SB-...
(models BSG-N-...-N-SB-...-SN are shown)

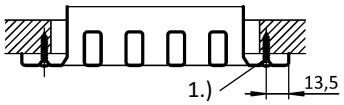
With 4 indentations (L = 325 / 425 / 525)



With 6 indentations (L = 625 / 825 / 1025 / 1225)



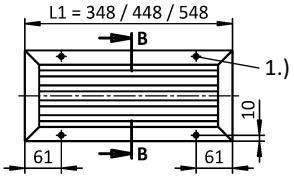
Section A-A (drawn rotated by 90°)



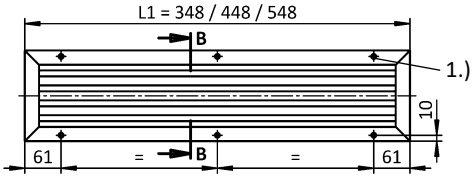
Single design (-N) / aluminium (-AL)

BSG-N-...-N-AL-... / BSG-S-...-N-AL-...
(models BSG-N-...-N-AL-...-SN are shown)

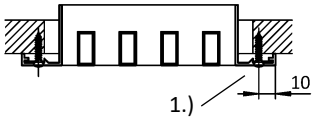
With 4 indentations (L = 325 / 425 / 525)



With 6 indentations (L = 625 / 825 / 1025 / 1225)



Section B-B (drawn rotated by 90)

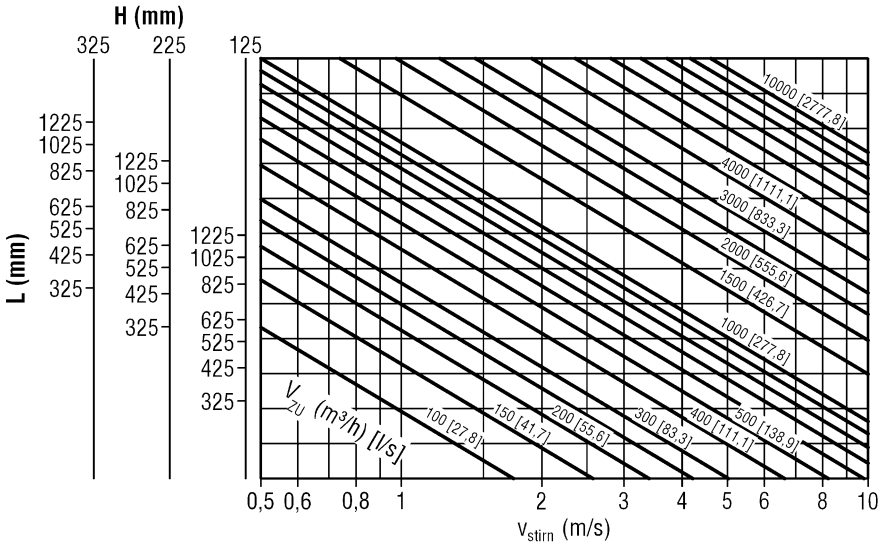


1.) contersunk for screws DIN ISO 7051 ST 3.9

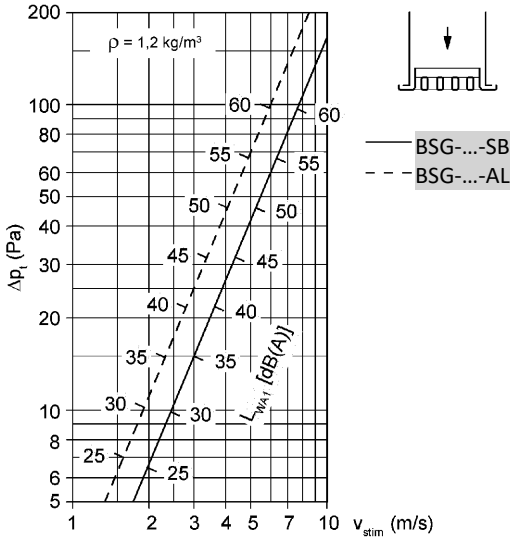
TECHNICAL DATA

Pressure loss and noise level

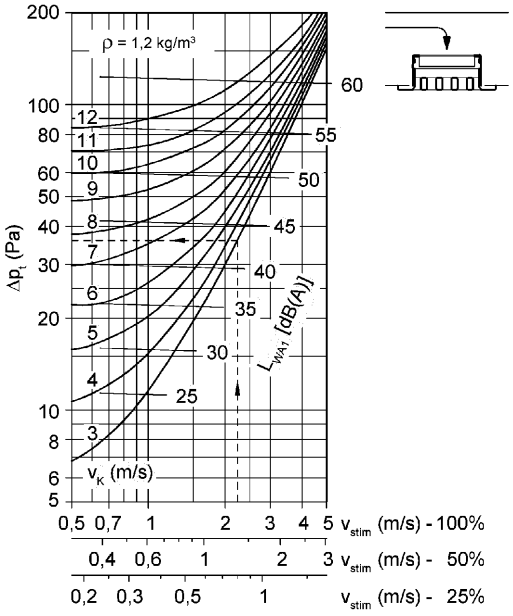
Face velocity
BSG-N, for supply and return air



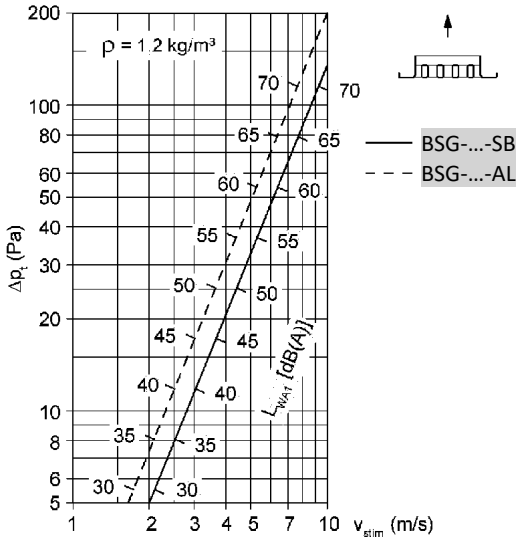
BSG-N-...-SN (supply air)
without hit-and-miss damper



BSG-N-...-SS (supply air)
With hit-and-miss damper

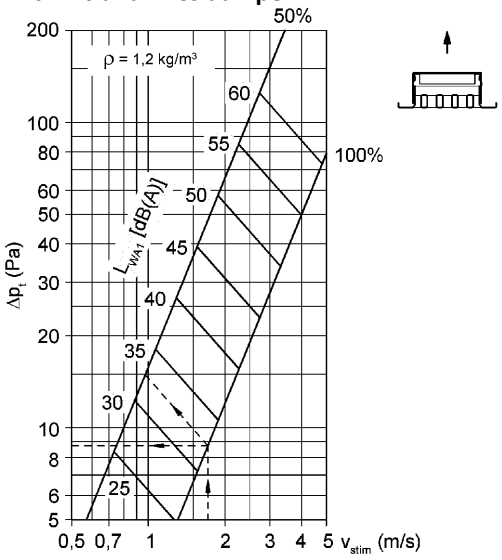


BSG-N-...-SN (return air)
without hit-and-miss damper



Hit-and-miss damper open in %

BSG-N-...-SS (return air)
With hit-and-miss damper



Hit-and-miss damper open in %

Face area BSG-N

		L						
		325	425	525	625	825	1025	1225
H	125	0.031	0.041	0.051	0.061	0.082	0.102	0.123
	225	0.061	0.081	0.101	0.122	0.162	0.202	0.243
	325	0.091	0.121	0.152	0.182	0.242	0.303	0.363
		A_{Stirn} (m²)						

Correction factor
supply air

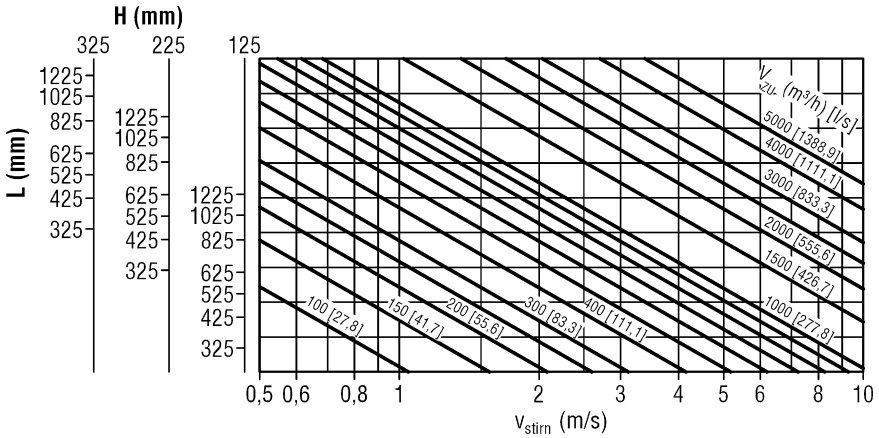
A_{Stirn}	(m²)	0.012	0.025	0.05	0.1	0.16	0.2	0.4
KF	(-)	-9	-6	-3	0	+2	+3	+6

Return air

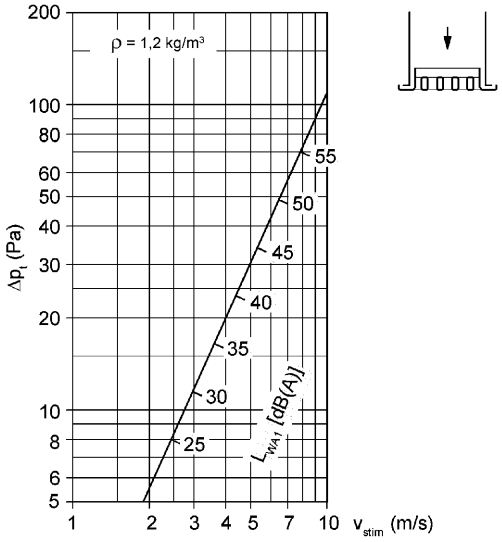
A_{Stirn}	(m²)	0.01	0.02	0.04	0.08	0.16	0.32	0.4
KF	(-)	-9	-6	-3	0	+3	+6	+7

$L_{WA} = L_{WA1} + KF$

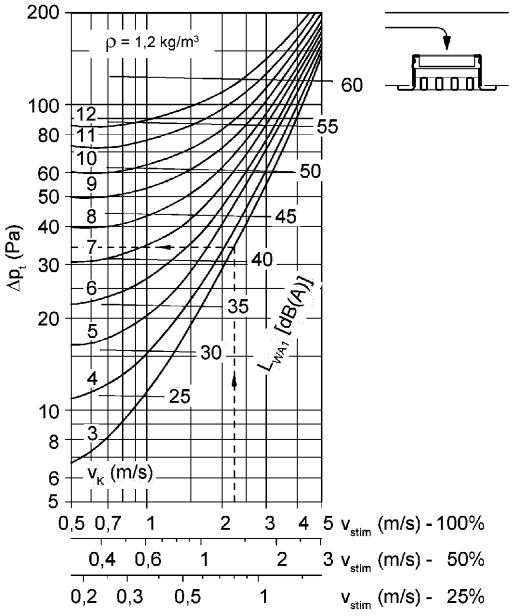
Face velocity
BSG-S, for supply and return air



BSG-S-…-SN (supply air)
without hit-and-miss damper



BSG-S-…-SS (supply air)
With hit-and-miss damper



Hit-and-miss damper open in %

Face area BSG-S

H \ L	325	425	525	625	825	1025	1225
125	0.031	0.041	0.051	0.061	0.082	0.102	0.123
225	0.061	0.081	0.101	0.122	0.162	0.202	0.243
325	0.091	0.121	0.151	0.182	0.242	0.303	0.363

A_{Stirn} (m²)

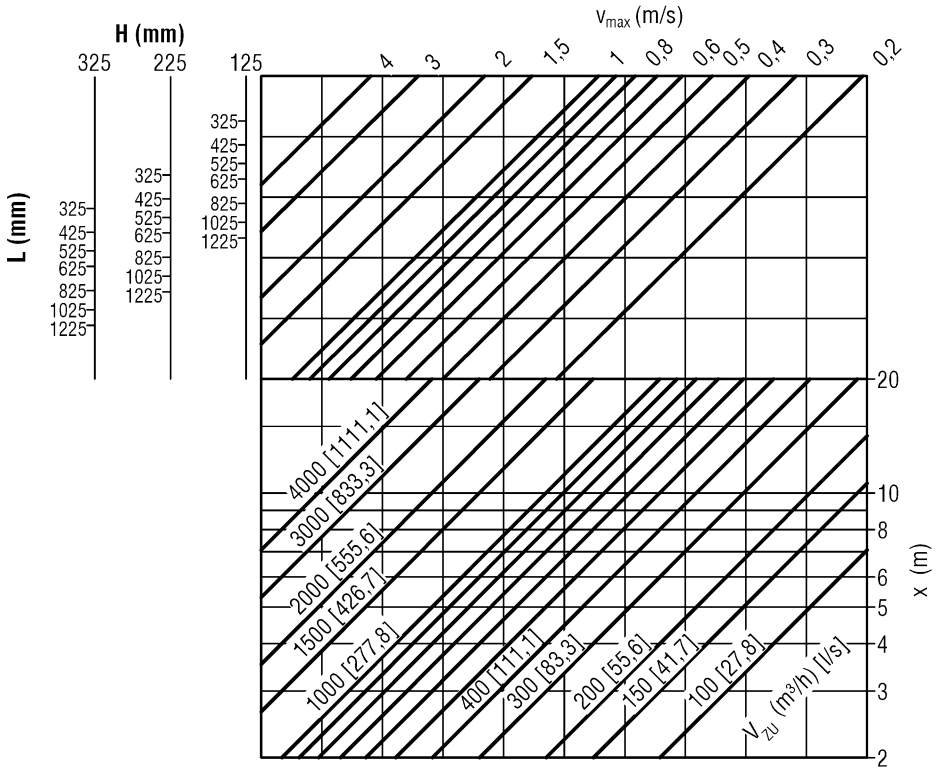
Correction factor
supply air

A_{Stirn}	(m²)	0.01	0.02	0.04	0.08	0.16	0.32
KF	(-)	-9	-6	-3	0	+3	+6

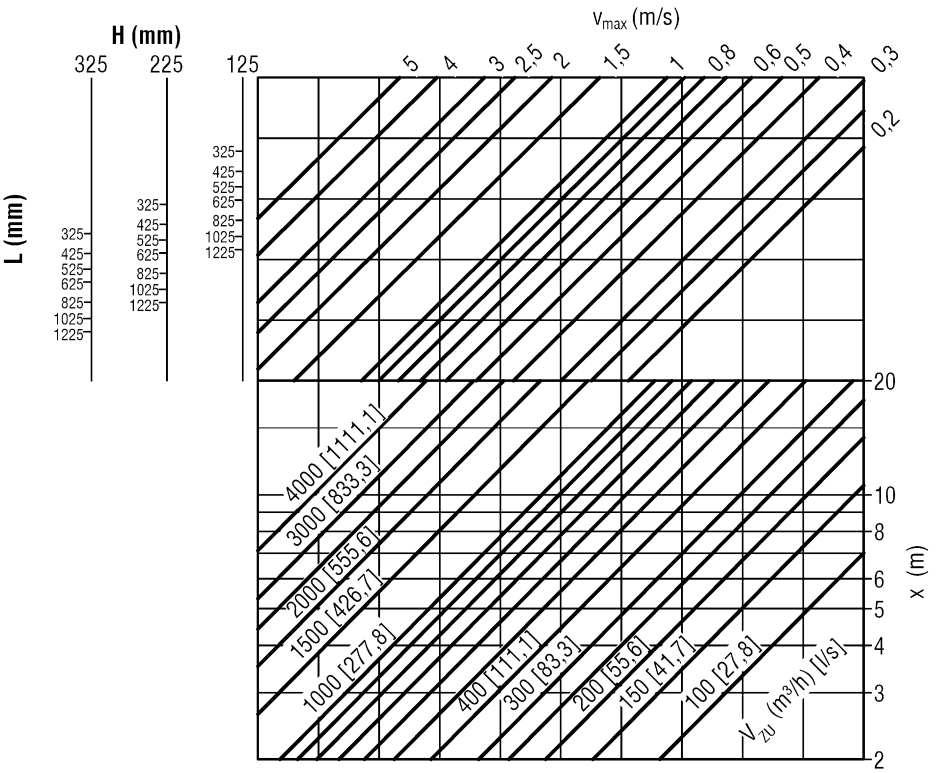
$L_{WA} = L_{WA1} + KF$

Maximum final jet velocity

BSG-N (supply air), without coanda effect

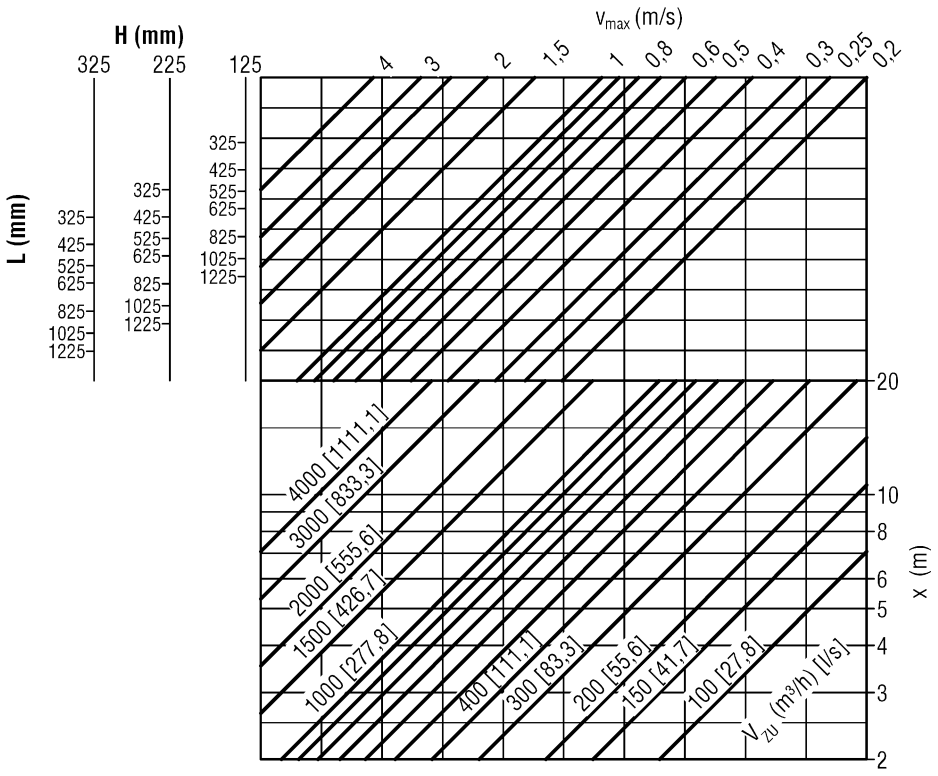


BSG-N (supply air), with coanda effect

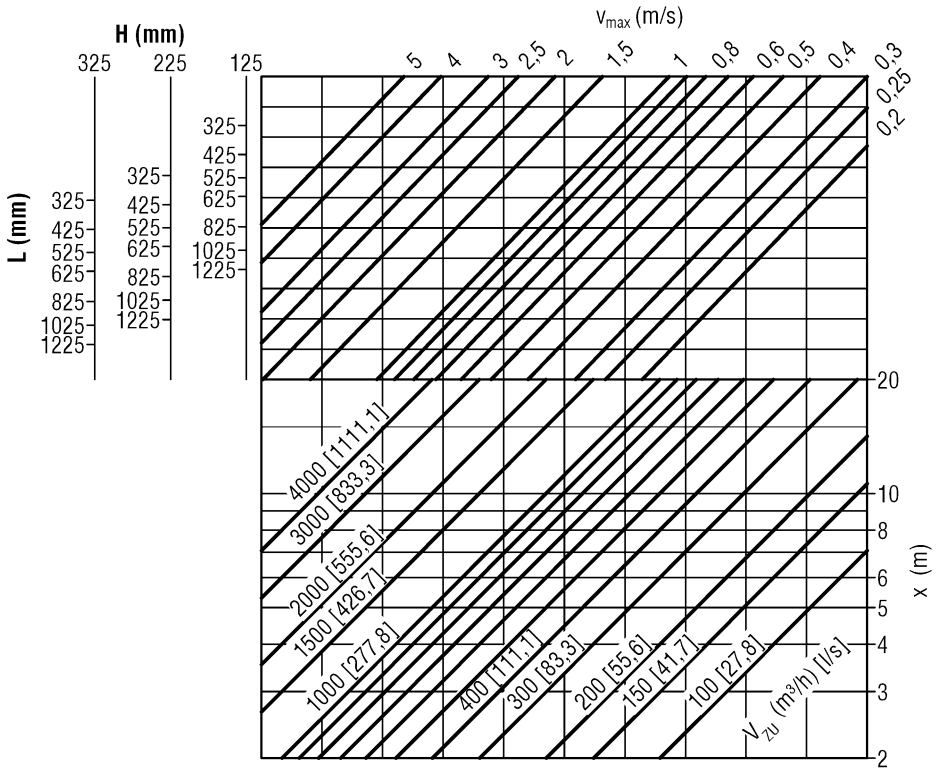


Maximum final jet velocity

BSG-S (supply air), without coanda effect

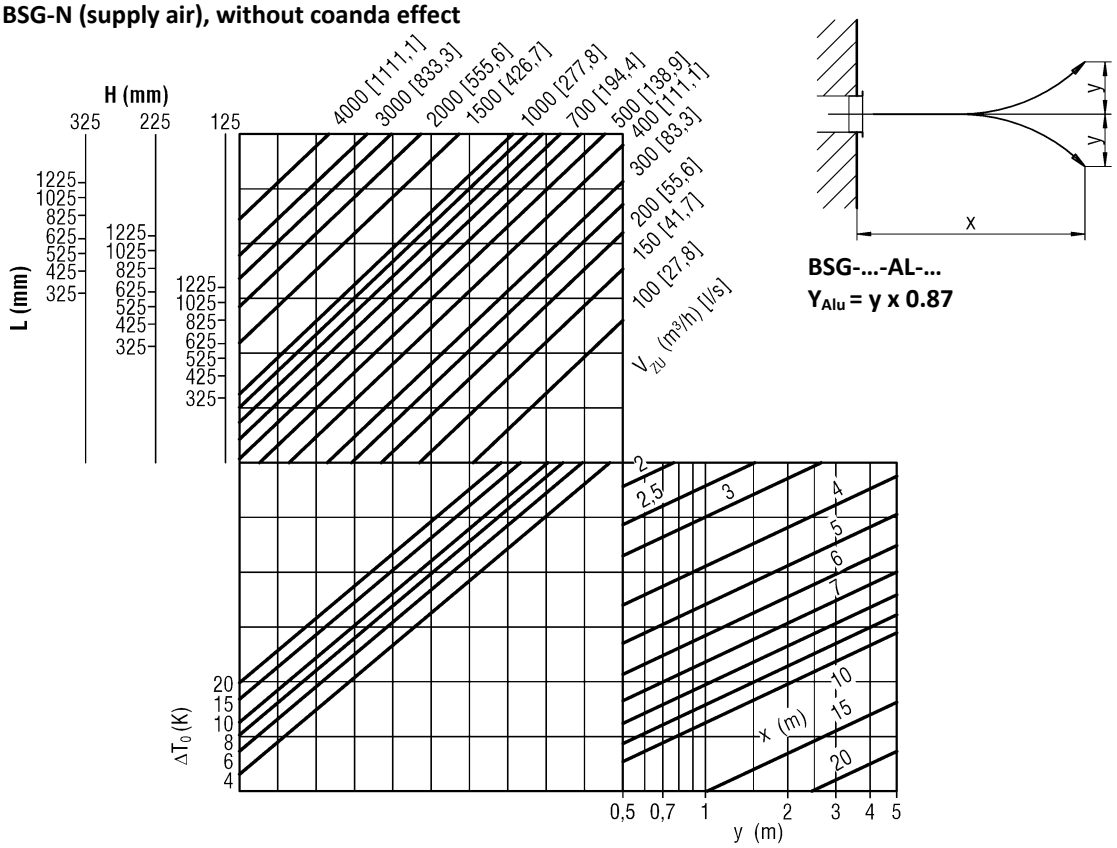


BSG-S (supply air), with coanda effect



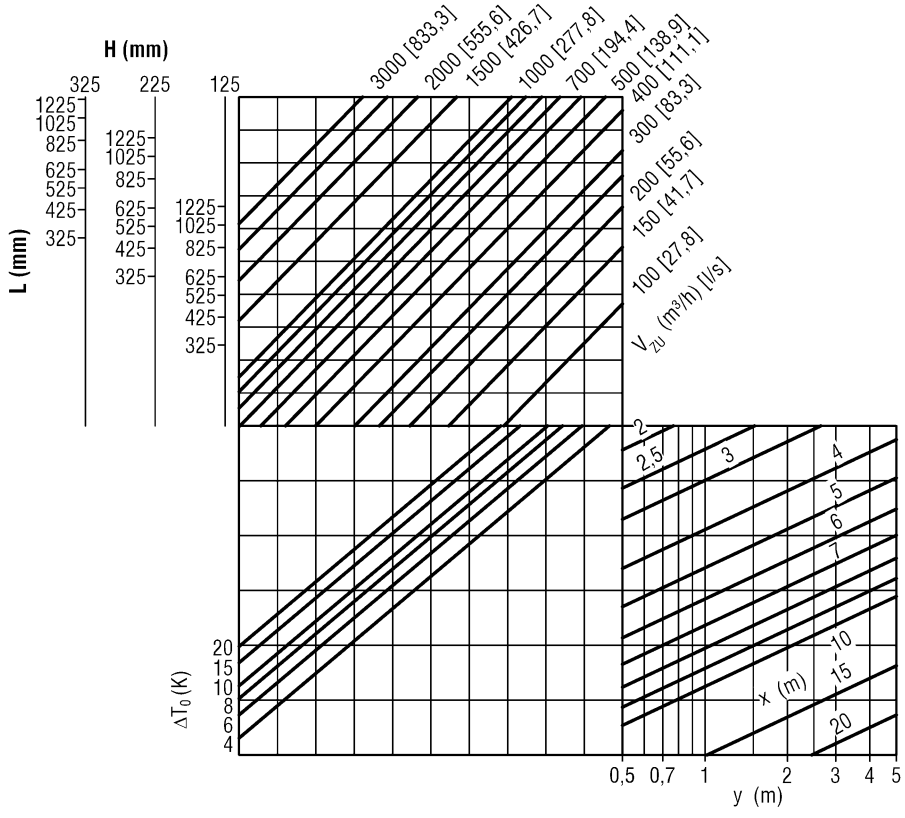
Jet path

BSG-N (supply air), without coanda effect



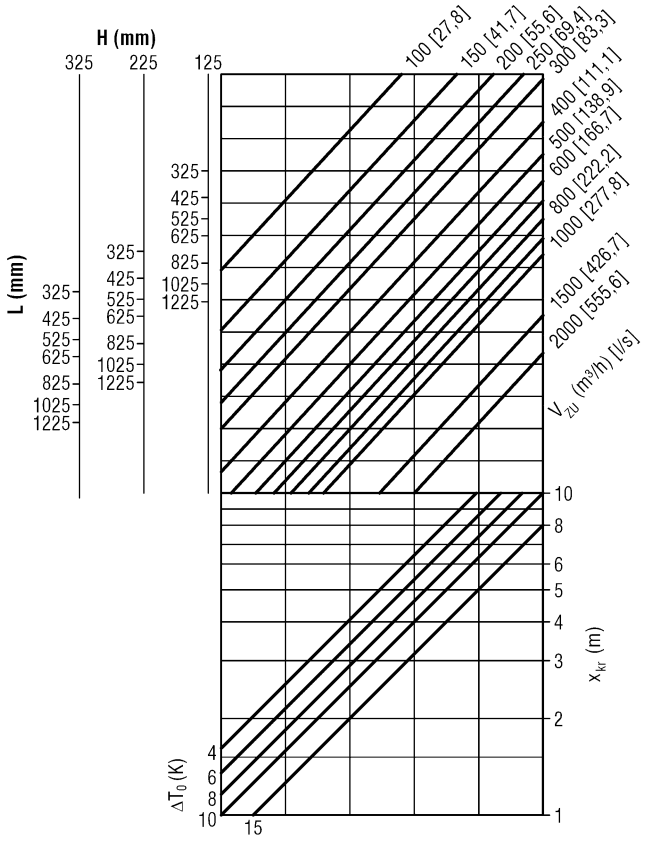
BSG-...-AL-...
Y_{Alu} = y x 0.87

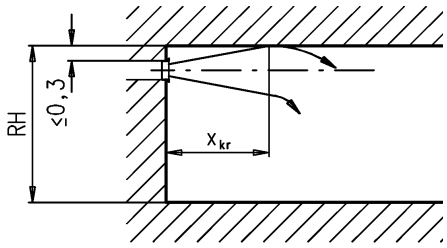
BSG-S (supply air), without coanda effect



Critical throw

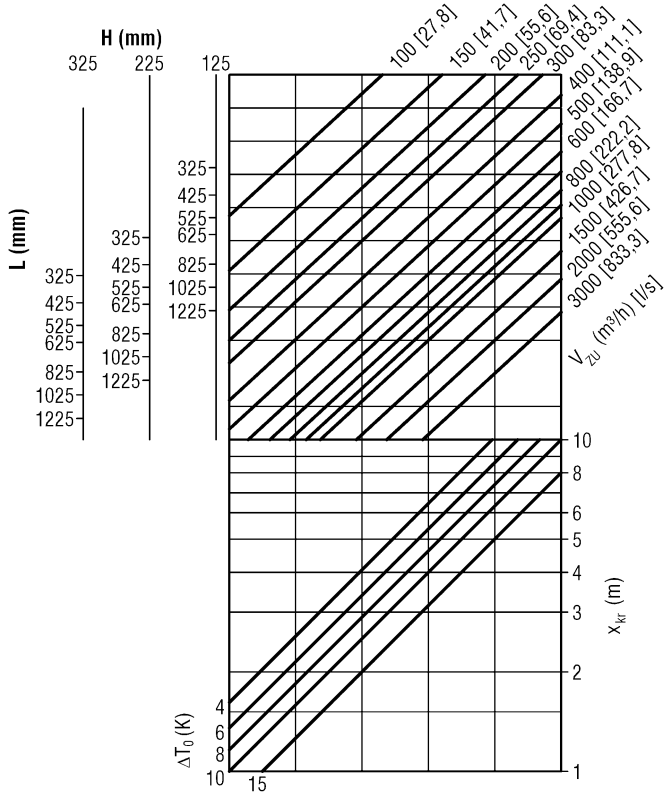
BSG-N (supply air), with coanda effect





BSG-...-AL-...
Y_{Alu} = y x 0.87

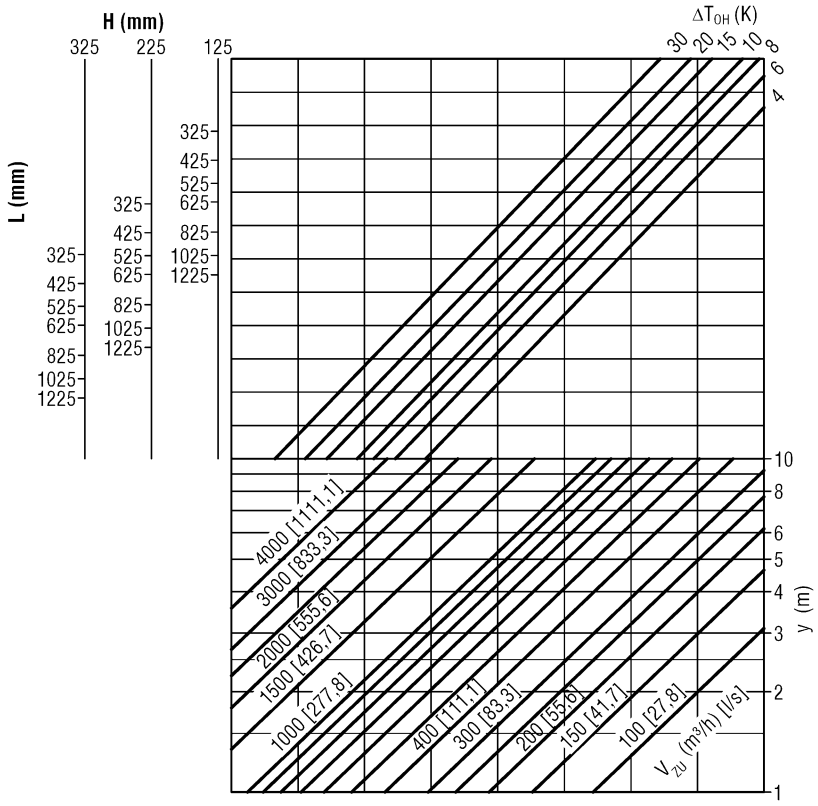
BSG-S (supply air), with coanda effect

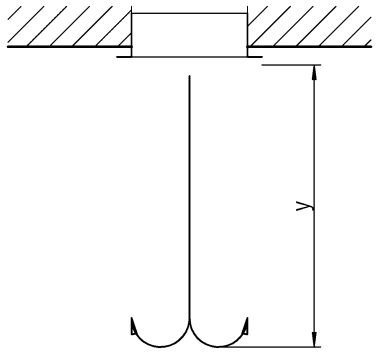


Maximum penetration

In heating mode

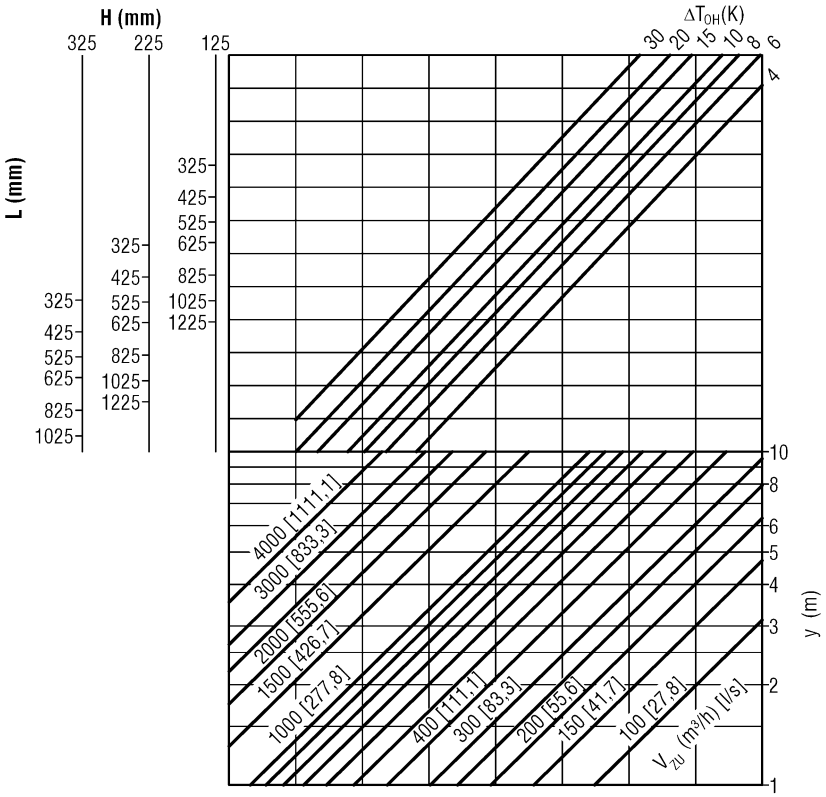
BSG-N (supply air), without coanda effect





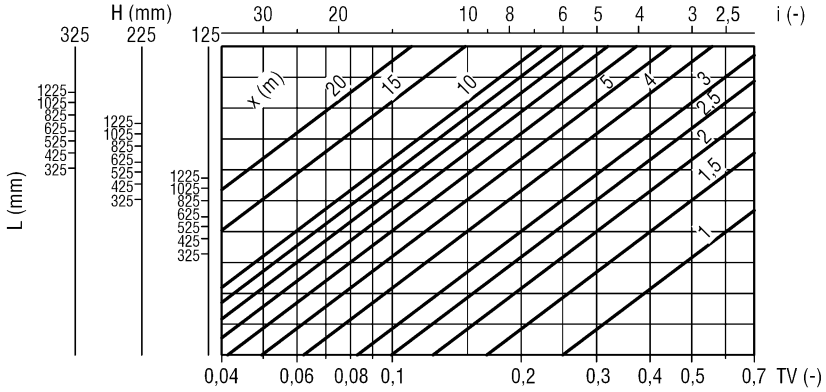
BSG-...-AL-...
Y_{Alu} = y x 0.87

BSG-S (supply air), without coanda effect

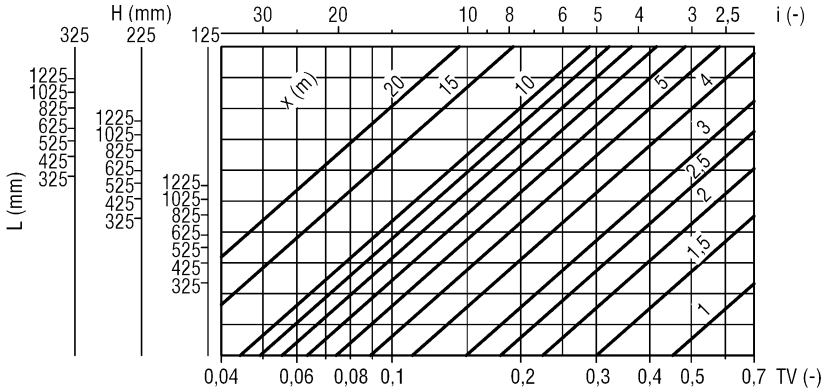


Induction ratios and temperature ratios

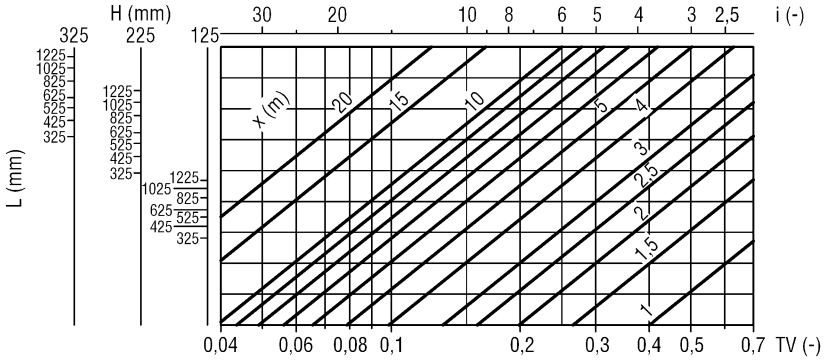
BSG-N (supply air), without coanda effect



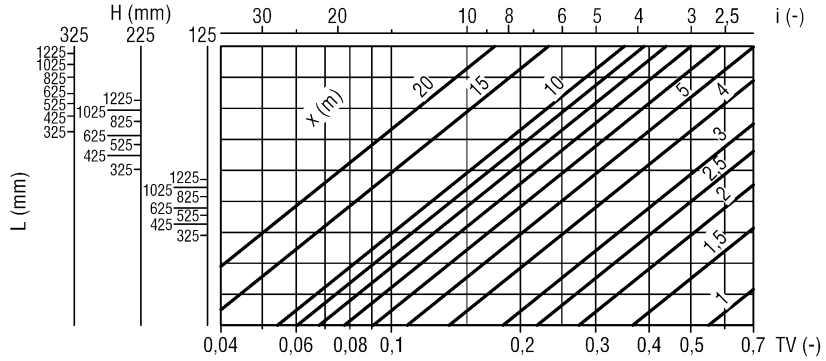
BSG-N (supply air), with coanda effect



BSG-S (supply air), without coanda effect

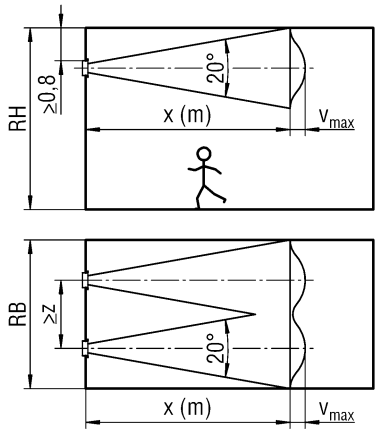


BSG-S (supply air), with coanda effect

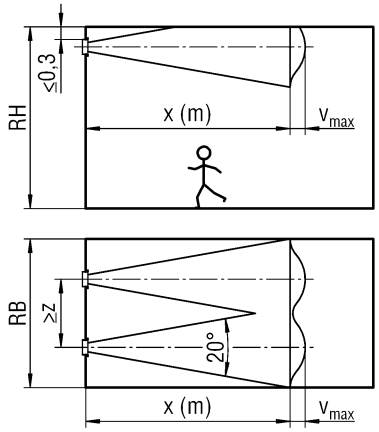


Minimum distances

Supply air without coanda effect



Supply air with coanda effect

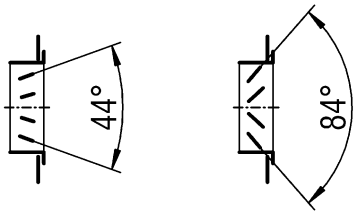


For the diagrams to be correct, the distance z between two grilles must be ≥ x (m) x 0.2.

Correction factor (for scattered air jet)

(for scattered air jet)

with or without coanda effect



Blade position	44°	84°
Maximum end velocity of jetEnd velocity of jet	v_{max} (m/s) × 0.65	v_{max} (m/s) × 0.5
Critical throw x_{kr}	× 0.77	× 0.6
TV = ΔT_x / ΔT_0	× 0.65	× 0.5
Induction ratio	i × 1.3	i × 2
Jet drop - Jet rise	y × 1.3	y × 2
Grille spacing z(m)	x × 0.20	x × 0.25

LEGEND

V_{ZU}	(m³/h) [l/s]	= Supply air volume
V_X	(m³/h) [l/s]	= total air jet volume at point x
v_{max}	(m/s)	= max. end velocity of jet
v_K	(m/s)	= duct velocity
v_{stirn}	(m/s)	= intake velocity, blower stream velocity, outflow velocity, relative to A_{stirn}
A_{stirn}	(m²)	= face area
x	(m)	= horizontal throw
y	(m)	= vertical throw
x_{kr}	(m)	= critical throw
y_{Alu}	(m)	= vertical throw for aluminium model
$y_{kr\ Alu}$	(m)	= critical throw for aluminium model
ρ	(kg/m³)	= Density
Δp_t	(Pa)	= pressure loss
L_{WA}	[dB(A)]	= A-weighted sound power level ($L_{WA} = L_{WA1} + KF$)
L_{WA1}	[dB(A)]	= A-weighted sound power level, relative to A_{stirn} = 0.08 m²
KF	(-)	= Correction factor
ΔT_O	(K)	= Temperature difference between supply air and room temperature ($\Delta T_O = t_{ZU} - t_R$)
ΔT_{OH}	(K)	= Temperature difference between supply air and ambient temperature in heating mode ($\Delta T_{OH} = t_{ZU} - t_{RH}$)
ΔT_X	(K)	= Temperature difference at point x
t_{ZU}	(°C)	= supply air temperature
t_R	(°C)	= room temperature
t_{ZUH}	(°C)	= supply air temperature in heating mode
t_{RH}	(°C)	= ambient temperature in heating mode
i	(-)	= induction ratio ($i = V_X / V_{ZU}$)
TV	(-)	= Temperature ratio ($TV = \Delta T_X / \Delta T_O$)
z	(m)	= minimum clearance between two grilles x (m) × 0.2
RH	(mm)	= room height
RB	(mm)	= room width
L	(mm)	= length
H	(mm)	= Height

ORDER CODE BSG

01	02	03	04	05	06
Type	Model	Blade spacing	Length	Height	Single / band design
Example					
BSG	-N	-ST	-00625	-125	-N

07	08	09	10	11
Material	Paint	Mounting	Installation frame	Hit-and-miss dam-
-SB	-9010	-SM	-ER0	-SN

All fields must be filled when ordering.

Sample
BSG-N-ST-0625-125-N-SB-9010-SM-ER0-SN

BSG ball-impact-resistant grilles| with horizontal, fixed profile bars at the front | profile bar spacing 15 mm | grille length L = 625 mm | grille height H = 125 mm | single design | sheet steel | painted in RAL 9010 (white) | screw mounting | without installation frame | without hit-and-miss damper

ORDER DETAILS

01 - Type
BSG = ball-impact-resistant grilles

02 - Model
N = with horizontal, fixed profile bars at the front.
S = with vertical, fixed profile bars at the front and pivoting horizontal air deflection blades.

03 - Blade spacing
ST = standard profile bar spacing
08 = profile bar spacing 8 mm (only possible for BSG-N version: required for ball impact safety in accordance with DIN 18032, Part 3 and simultaneous installation below 2 m)

04 - Length
00325 = grille length L = 325 mm
00425 = grille length L = 425 mm
00525 = grille length L = 525 mm
00625 = grille length L = 625 mm
00825 = grille length L = 825 mm
01025 = grille length L = 1025 mm
01225 = grille length L = 1225 mm

05 - Height
125 = grille height H = 125 mm
225 = grille height H = 225 mm
325 = grille height H = 325 mm

06 - Single / band design
N = single design (standard)

07 - Material
SB = sheet steel (standard, only available with paint)
AL = aluminium

08 – Paint
ELOX = natural colour anodised (E6/EV1) (only possible for -AL model, standard for -AL model)
9010 = painted in RAL colour 9010 (white) (standard for -SB model)
xxxx = painted in a freely selectable RAL colour (possible for -SB and -AL models) (always with 4 digits).

09 - Mounting
SM = screw mounting (standard)

10 - Installation frame
ER0 = without installation frame (standard)
ER1 = with installation frame without wall anchors
ER2 = with installation frame with wall anchors
Installation frame only without plenum box possible.

11 - Hit-and-miss damper
SN = Without hit-and-miss damper (standard)
SS = with hit-and-miss damper

ORDER CODE AK

01	02	03	04	05	06	07
Type	Air diffuser	Length	Height	Single / band design	Mounting	Material
Example						
AK	-40	-00325	-125	-N	-SM	-SV

08	09	10	11	12	13
Damper	Rubber lip seal	Insulation	Height of box	Spigot diameter	Spigot position
-DK1	-GD1	-I0	-KHS	-SDS	-S1

All fields must be filled when ordering.

Sample
AK-40-00325-125-N-SM-SV-DK1-GD1-I0-KHS-SDS-S1

Plenum box, rectangular design | for BSG ball-impact-resistant grilles | grille length L = 325 mm | grille height H = 125 mm | single design | with screw mounting | galvanised sheet steel | with damper | with rubber lip seal | without insulation | standard height of box | standard spigot diameter | lateral spigot

ORDER DETAILS

01 - Type
AK = plenum box, rectangular design

02 - Air diffuser
40 = for BSG ball-impact-resistant grilles

03 - Length
00325 = grille length L = 325 mm
00425 = grille length L = 425 mm
00525 = grille length L = 525 mm
00625 = grille length L = 625 mm
00825 = grille length L = 825 mm
01025 = grille length L = 1025 mm
01225 = grille length L = 1225 mm

04 - Height
125 = grille height H = 125 mm
225 = grille height H = 225 mm
325 = grille height H = 325 mm

05 - Single / band design
N = single design (standard)

06 - Mounting
SM = screw mounting (standard, screws must be provided on site)

07 - Material
SV = galvanised sheet steel (standard)

08 - Damper
DK0 = without damper (standard)
DK1 = with damper (standard for spigot position -S1)
DK2 = with damper and cable-operated adjustment (standard for spigot position -S0 / -S4)

09 - Rubber lip seal
GD0 = without rubber lip seal (standard)
GD1 = with rubber lip seal

10 - Insulation
I0 = without insulation (standard)
Ii = With internal insulation
Ia = With external insulation

11 - Height of box
KHS = standard height of plenum box
xxx = height of box in mm, freely selectable (minimum height [KHS] with spigot positions -S1 and -S4 = spigot diameter +87 mm, but at least 200 mm) (always with 3 digits).

12 - Spigot diameter
SDS = standard spigot diameter
xxx = spigot diameter in mm, freely selectable (always with 3 digits) (with spigot positions -S0 and -S4, if the spigot diameter is increased, only the offset plenum box shape is available).

13 - Spigot position
S0 = spigot from above
S1 = lateral spigot on the plenum box (standard)
S4 = spigot front side

SPECIFICATION TEXT

Ball-impact-resistant grilles, **type BSG**, for supply and return air, for installation in rectangular ducts or plenum boxes.
Assembly parts made of electrolytically galvanised sheet steel.
Product: SCHAKO **type BSG-…**

Model:
- with horizontal, fixed profile bars at the front (**-N**)
- with vertical, fixed profile bars at the front and pivoting horizontal air deflection blades (**-S**)

Blade spacing:
- standard profile bar spacing (**-ST**)
- profile bar spacing 8 mm (only possible for BSG-N version: required for ball impact safety in accordance with DIN 18032, Part 3 and simultaneous installation below 2 m) (**-08**).

Length:
- grille length L = 325 mm (**-00325**)
- grille length L = 425 mm (**-00425**)
- grille length L = 525 mm (**-00525**)
- grille length L = 625 mm (**-00625**)
- grille length L = 825 mm (**-00825**)
- grille length L = 1025 mm (**-01025**)
- grille length L = 1225 mm (**-01225**)

Height:
- grille height H = 125 mm (**-125**)
- grille height H = 225 mm (**-225**)
- grille height H = 325 mm (**-325**)

Single / band design:
- single design (**-N**) (standard)

Material:
- sheet steel (**-SB**) (standard, only possible with paint)
- aluminium (**-AL**)

Paint:
- natural colour anodised (E6/EV1) (**-ELOX**) (only possible for -AL model, standard for -AL model)
- painted in RAL colour 9010 (white) (**-9010**, standard for -SB model)
- painted in a freely selectable RAL colour **(-xxxx)** (possible for -SB and -AL models) (always with 4 digits, at an extra charge).

Mounting:
- screw mounting (**-SM**, standard), screws must be provided on site.

Accessories:
- Installation frame (-ER0 / -ER1 / -ER2)
  - without installation frame (-ER0)
  - with installation frame made of galvanised sheet steel (only possible without plenum box):
    - without wall anchors (-ER1)
    - with wall anchors (-ER2)
- Hit-and-miss damper (-SN / -SS)
  - without hit-and-miss damper (-SN, standard)
  - with hit-and-miss damper (-SS), made of galvanised sheet steel.
- Plenum box (-AK-40), in rectangular design, made of galvanised sheet steel (-SV, standard), housing with round connection spigot and mounting brackets.
  - Length:
    - grille length L = 325 mm (-00325)
    - grille length L = 425 mm (-00425)
    - grille length L = 525 mm (-00525)
    - grille length L = 625 mm (-00625)
    - grille length L = 825 mm (-00825)
    - grille length L = 1025 mm (-01025)
    - grille length L = 1225 mm (-01225)
  - Height:
    - grille height H = 125 mm (-125)
    - grille height H = 225 mm (-225)
    - grille height H = 325 mm (-325)
  - Single / band design:
    - single design (-N) (standard)
  - Mounting:
    - screw mounting (standard, screws must be provided on site) (-SM)
  - Damper:
    - without damper (-DK0) (standard)
    - with damper (-DK1), in the plenum box housing, adjustable, for simple air volume regulation (standard with spigot position -S1), made of galvanised sheet steel.
    - with damper (-DK2), with cable-operated adjustment, in the connection spigot, adjustable, for simple air volume regulation (standard with spigot positions -S0/-S4), made of galvanised sheet steel.
  - Rubber lip seal:
    - without rubber lip seal (-GD0) (standard)
    - with rubber lip seal (-GD1) made of special rubber, at the connection spigot.
  - Insulation:
    - without insulation (-I0) (standard)
    - with internal insulation (-Ii), thermal insulation inside the plenum box.
    - with external insulation (-Ia), thermal insulation at the outside of the plenum box.
  - Height of box:
    - standard height of box (-KHS)
    - height of plenum box in mm, freely selectable (-xxx) (minimum height [KHS] with spigot positions -S1 and -S4 = spigot diameter + 87 mm, but at least 200 mm) (always with 3 digits).
  - Spigot diameter:
    - standard spigot diameter (-SDS)
    - spigot diameter in mm, freely selectable (-xxx, always with 3 digits) (with spigot positions -S0 and -S4, if the spigot diameter is increased, only the offset plenum box shape is available).
  - Spigot position:
    - spigot from above (-S0)
    - lateral spigot on the box (-S1) (standard)
    - Spigot front side (-S4)