**AL**

Ventilation grille

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FUNCTION AND USE

The ventilation grille type AL is suitable for **use in supply and return air installations** and for **installation in rectangular ducts or plenum boxes**. For air deflection, **horizontal or vertical pivoting air deflection blades** are attached to the front side. Frame and blades **made of natural anodised aluminium or aluminium painted** to a RAL colour. Assembly parts made of galvanised sheet steel. Standard installation by means of concealed mounting. 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

AL-01-...	horizontal, pivoting air deflection blades on the front side.
AL-02-...	same as AL-01-..., additionally with vertical, pivoting air deflection blades.
AL-05-...	same as AL-01-..., additionally with hit-and-miss damper.
AL-06-...	same as AL-01-..., additionally with vertical, pivoting air deflection blades and hit-and-miss damper.
AL-11-...	vertical, pivoting air deflection blades on the front side.
AL-12-...	same as AL-11-..., additionally with horizontal, pivoting air deflection blades.
AL-15-...	same as AL-11-..., additionally with hit-and-miss damper.
AL-16-...	same as AL-11-..., additionally with horizontal, pivoting air deflection blades and hit-and-miss damper.
AL-...-N-...	single design.
AL-...-B-...	band design (only possible for AL-11 / -12 / -15 / -16, for a grille length BL > 1225 mm, available lengths according to SCHAKO standard for band design).

Air throw pattern:

...-L000-...	blade position straight (standard).
...-L044-...	blade position 44° diverging.
...-L084-...	blade position 84° diverging.
...-L110-...	blade position 110° diverging (only for AL-11 / AL-12 / AL-15 / AL-16).
...-L140-...	blade position 140° diverging (only for AL-11 / AL-12 / AL-15 / AL-16).
...-LGEG-...	blade position opposite to one another.

MOUNTING

- screw mounting (-SM, standard for band design)
 - screws must be provided on site.
 - band design with screw mounting only.
- Concealed mounting (-VM, standard)
 - only possible with plenum box or installation frame.
(without plenum box only possible with on-site counter pole brace).
- clamp mounting (-KB, standard for model without plenum box or without installation frame).

PROCESSING

Frame and blades

- Aluminium (-AL-...):
 - natural colour anodised (E6/EV1, only possible with concealed mounting (-ELOX) (standard).
 - painted to a RAL colour of your choice, freely selectable (-xxxx, at an extra charge).

ACCESSORIES

Plenum box (-AK-33)

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

- Length:
 - 325 mm (-00325)
 - 425 mm (-00425)
 - 525 mm (-00525)
 - 625 mm (-00625)
 - 825 mm (-00825)
 - 1025 mm (-01025)
 - 1225 mm (-01225)
 - length in mm, freely selectable (-xxxxx), for band design (for a grille length BL > 1225 mm: 2-part for a length of band BL ≤ 2424 mm, multi-part for a length of band > 2424 mm) (always with 5 digits).
- Height:
 - 75 mm (-075)
 - 125 mm (-125)
 - 225 mm (-225)
 - 325 mm (-325)
- Single / band design:
 - Single design (-N) (standard).
 - band design (-B) (only possible for AL-11 / AL-12 / AL-15 / AL-16, for a grille length BL > 1225 mm, available lengths according to SCHAKO standard for band design).
- Mounting:
 - screw mounting (-SM) (standard for band design, screws must be provided on site).
 - concealed mounting (-VM) (standard for single design).
- Damper:
 - without damper (-DK0) (standard).
 - with damper (-DK1), made of galvanised sheet steel, in the plenum box housing, adjustable, for simple air volume regulation (standard with lateral spigot position -S1).
 - with damper (-DK2), same as DK1, but with cable-operated adjustment (standard with spigot position from above -S0 and front side spigot position -S4).
- 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 plenum box:
 - Standard height of plenum box (-KHS).
 - height of plenum box in mm, freely selectable (-xxx) (minimum height [KHS] with spigot position -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 plenum box (-S1) (standard).
 - Front side spigot (-S4, not possible for band design).

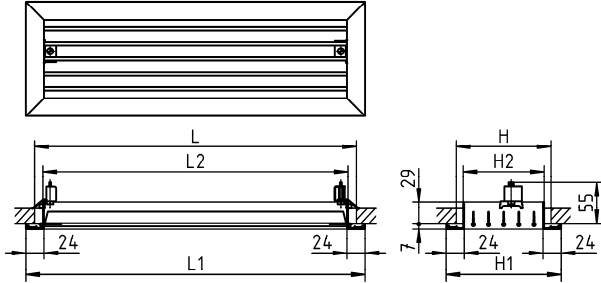
Installation frame (-ER0 / -ER1 / -ER2)

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

DIMENSIONS

SINGLE DESIGN (-N)

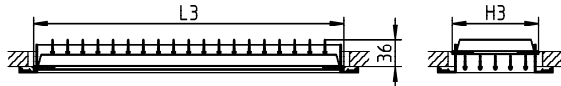
AL-01-...



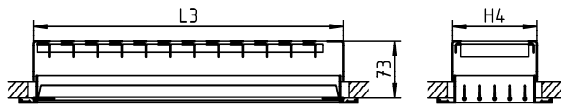
AL-01 / AL-02 / AL-05 / AL-06 with intermediate rail for lengths from 625 (see page 10)

All models are based on basic type AL-01-...:

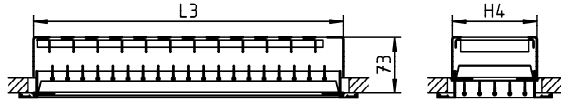
AL-02-...



AL-05-...



AL-06-...

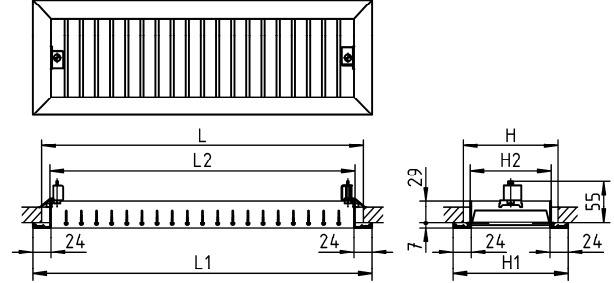


Available sizes AL-...

L	L1	L2	L3	H	H1	H2	H3	H4
325	348	303	310	075	102	57	64	62
425	448	403	410	125	152	107	114	112
525	548	503	510	225	252	207	214	212
625	648	603	610	325	352	307	314	312
825	848	803	810					
1025	1048	1003	1010					
1225	1248	1203	1210					

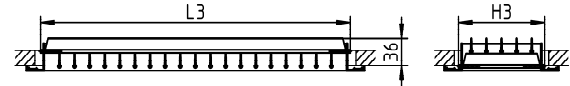
All combined lengths and heights available!
 Other sizes available on request.

AL-11-...

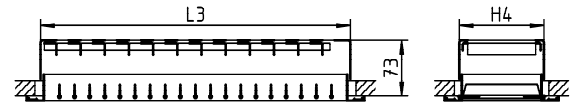


All models are based on basic type AL-11-...:

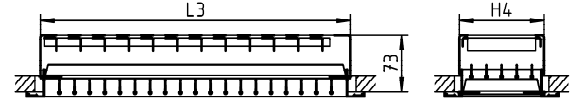
AL-12-...



AL-15-...



AL-16-...



BAND DESIGN (-B)

Band design is only possible with screw mounting (-SM).

Available lengths according to SCHAKO standard:

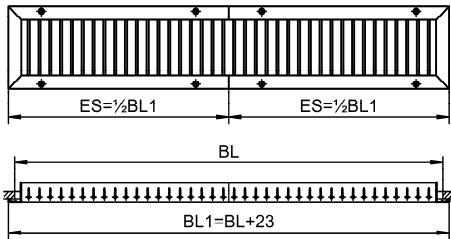
In the band design of the ventilation grille AL, the total length BL is assembled from two end pieces in the 2-part model and from sections (TS) of 1020 mm and end pieces (ES) in the multi-part model.

The end pieces can be manufactured in lengths from 1224 mm.

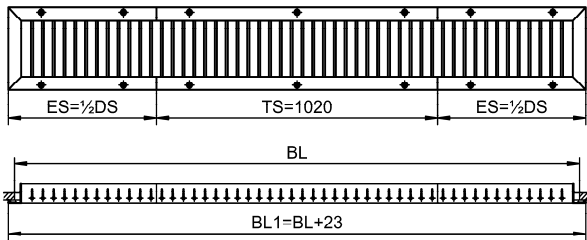
Without plenum box

only for: AL-11-...-B-...-SM / AL-12-...-B-...-SM /
 AL-15-...-B-...-SM / AL-16-...-B-...-SM

2-part for a length of band BL > 1225 mm to ≤ 2424 mm



multi-part for a length of band BL > 2424 mm



Max. length end piece (ES):

$ES_{max} = 1224 \text{ mm}$

- ES = end piece
- KES = plenum box end piece (KES = ES-20)
- TS = section
- KTS = plenum box section
- DS = difference piece (DS = BL1 - [n x TS])
- n = number of sections
- BL = band length

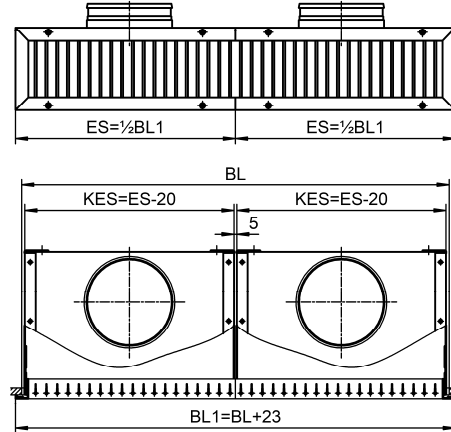
For spigot position / plenum box shape, see pages 6+7
 For mounting options, see page 10

Construction subject to change
 No return possible

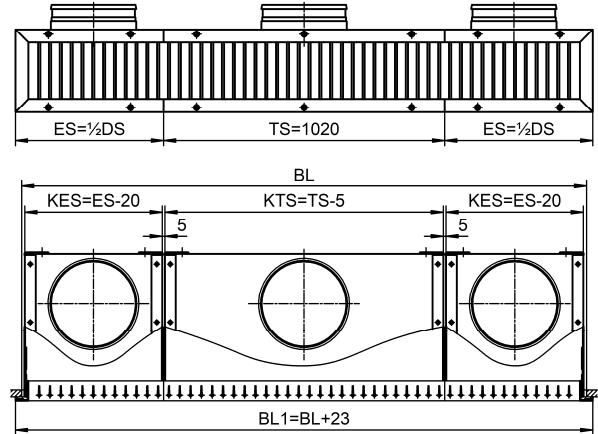
with plenum box

only for: AL-11-...-B-...-SM / AL-12-...-B-...-SM /
 AL-15-...-B-...-SM / AL-16-...-B-...-SM

2-part for a length of band BL > 1225 mm to ≤ 2424 mm



multi-part for a length of band BL > 2424 mm

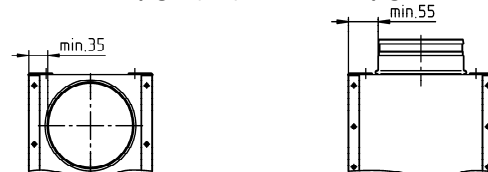


Max. length plenum box end piece (KES):

$KES_{max} = 1204 \text{ mm}$

Minimum distance spigot in the plenum box

with lateral spigot (-S1): with spigot from above (-S0):



As standard, the plenum box end pieces (KES) have the same dimensions KHS / KB2 / ϕD as the plenum box section (KTS) (for dimensions, see the table of available sizes, page 7, marking *).

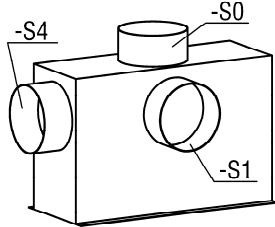
DIMENSIONS OF ACCESSORIES

Plenum box (-AK-33)

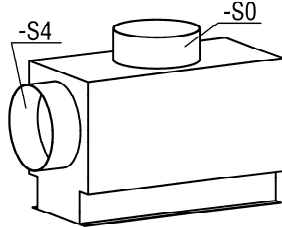
SINGLE DESIGN (-N)

Spigot position

Straight plenum box:



Offset plenum box:



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

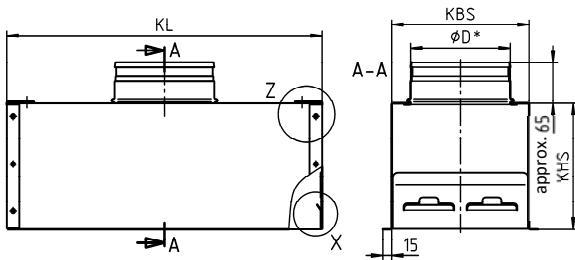
Spigot diameter for spigot position "Spigot front side (-S4)" is **identical** with "Lateral spigot on the box (-S1)".

Spigot diameter for spigot position "Spigot from above (-S0)" is **in part not identical** with "Lateral spigot on the box (-S1)".

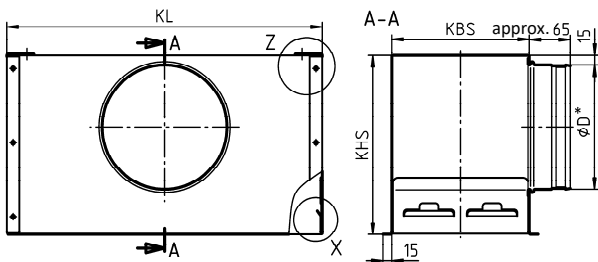
For the table of available sizes, see page 7.

Straight plenum box:

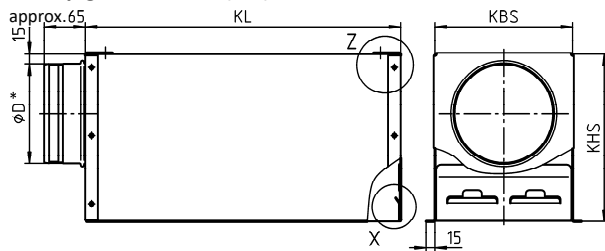
with spigot from above (-S0)



with lateral spigot on the plenum box (-S1)



with spigot front side (-S4)



* external

For plenum box in band design, see page 5.

Construction subject to change
 No return possible

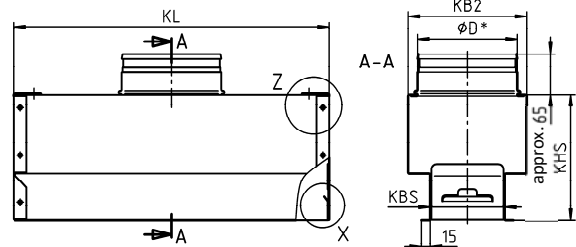
Offset plenum box:

If $KBS < (\phi D + 30)$, an offset plenum box will be manufactured.

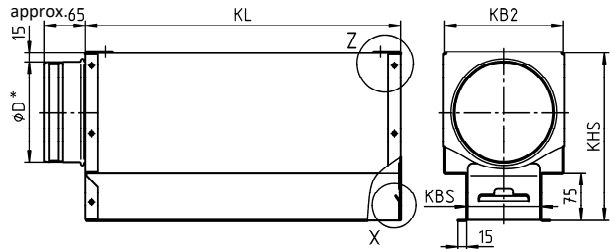
For model -S0: $KB2 = \phi D + 30$

Minimum difference between KBS and $KB2 = 40$ mm.

with spigot from above (-S0)



with lateral spigot on the plenum box (-S4)

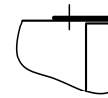


* external

Plenum box mounting:

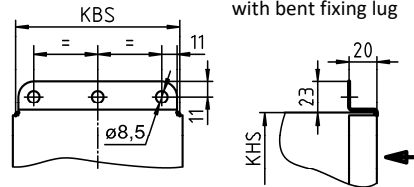
Detail Z

As-delivered condition with fitted mounting bracket



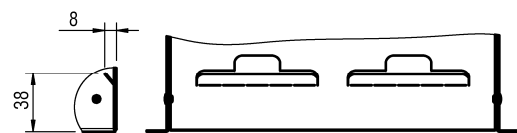
Detail Z

with bent fixing lug



Concealed mounting:

Detail X



Concealed plates can be bent outwards, if necessary.

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

Minimum width $KB2$ with spigot position -S0 / -S4:
 $KB2_{min.} = \phi D + 30$ mm

Minimum difference between KBS and $KB2 = 40$ mm.

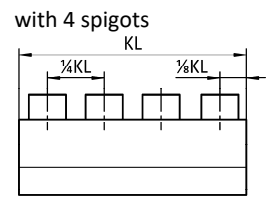
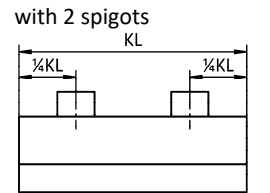
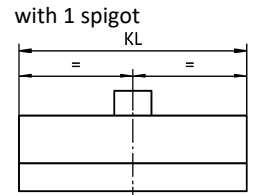
The dimension KBS cannot be changed.

With spigot positions -S0 and -S4, if the spigot diameter is increased, only the offset plenum box shape is available.

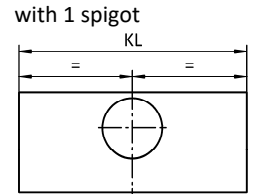
Available sizes for AK-33

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				
75	68	325	320	220	--	1x Ø123		200*	128*		220	153	1x Ø123						
		425	420												1x Ø98				
		525	520												2x Ø98				
		625	620	265*	--	1x Ø158*									4x Ø98*	265	188	1x Ø158	
		825	820																
		1025	1020																
1225	1220																		
125	118	325	320	265	--	1x Ø158		200*	158*		265	188	1x Ø158						
		425	420												1x Ø98				
		525	520												2x Ø98				
		625	620	285*	--	1x Ø198*									4x Ø98*	285	228	1x Ø198	
		825	820																
		1025	1020																
1225	1220																		
225	218	325	320	285	--	1x Ø198		200*	258		285	258	1x Ø198						
		425	420												1x Ø198				
		525	520												2x Ø178*				
		625	620	335*	--	1x Ø248*									335	278	1x Ø248		
		825	820																
		1025	1020																
1225	1220																		
325	318	325	320	335	--	1x Ø248		200*	--		335	--	1x Ø248						
		425	420												1x Ø248				
		525	520												2x Ø222*				
		625	620	400*	--	1x Ø313*									400	358	1x Ø313		
		825	820																
		1025	1020																
1225	1220																		

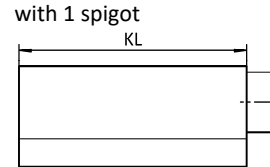
Number of spigots:
Spigot from above (-S0)



Lateral spigot (-S1)
 (standard)



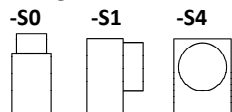
Spigot front side (-S4)
 Band design not possible.



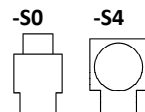
* dimensions for band design / n = number of spigots

Plenum box shape

Straight:



Offset:



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.

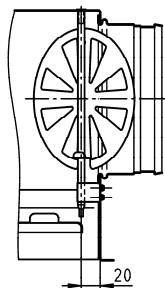
With spigot positions -S0 and -S4, if the spigot diameter is increased, only the offset plenum box shape is available.

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:

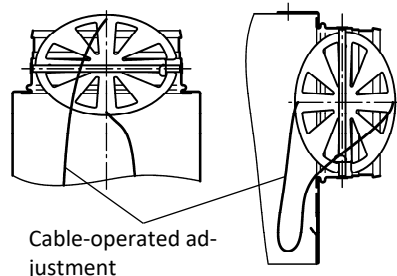
Lateral spigot -S1



-DK2 (with cable-operated adjustment):

spigot from above -S0

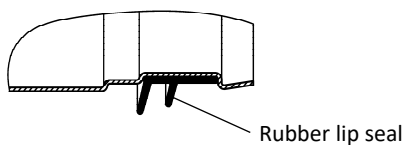
spigot front side -S4



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

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

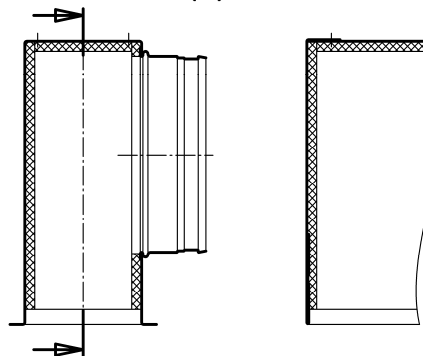
Detail Y



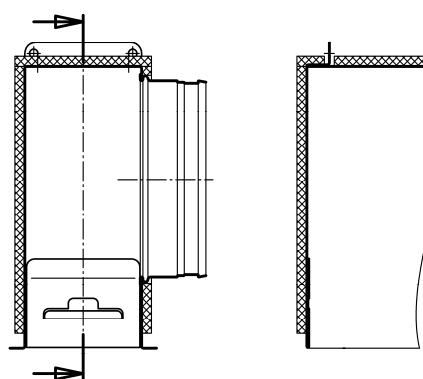
Insulation (-I0 / -Ii / -Ia), for AK-...

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

Internal insulation (-Ii)



External insulation (-Ia)

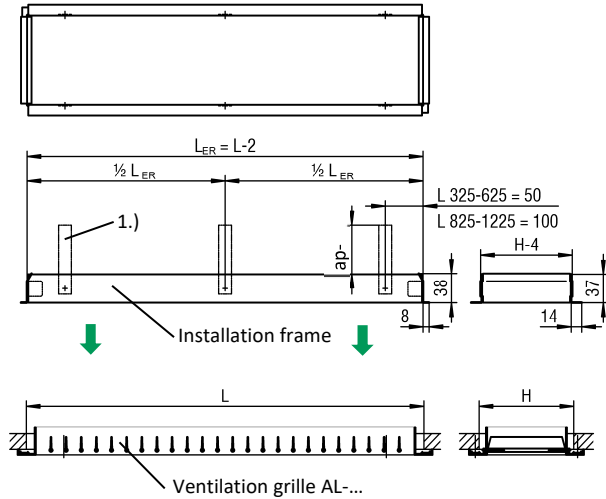


Installation frame (-ER0 / -ER1 / -ER2)

- 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 in the absence of a plenum box.

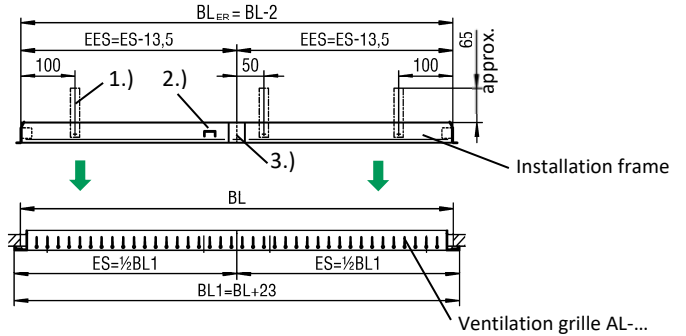
SINGLE DESIGN (-N)



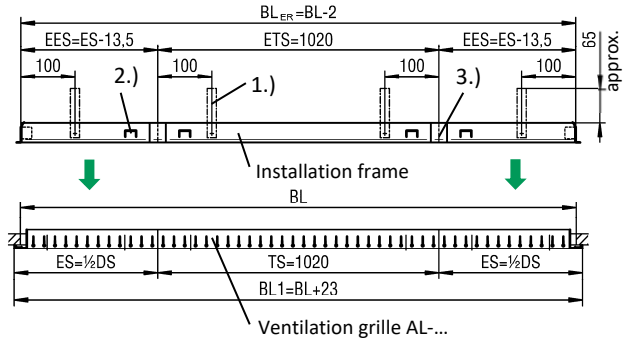
Length $L \leq 825 \text{ mm} = 4$ wall anchors
 Length $L > 825 \text{ mm} = 6$ wall anchors
 Installation frame made of electrolytically galvanised sheet steel.
 The installation frame is only delivered with wall anchors on special request (-ER2, at an extra charge).

BAND DESIGN (-B)

2-part for a length of band $BL > 1225 \text{ mm}$ to $\leq 2424 \text{ mm}$



multi-part for a band length $BL > 2424 \text{ mm}$

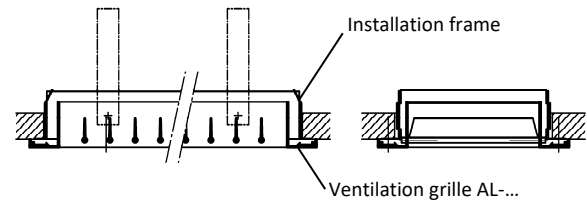


Max. length installation frame end piece (EES / ES):

$EES_{max} = 1210.5 \text{ mm} / ES_{max} = 1224 \text{ mm}$ (see page 5)

Mounting frames for grille bands are supplied with plug-in connections. Assembly webs are additionally attached, they can easily be removed with a turn, once the grille is walled in. All mounting frames are supplied without wall anchors as standard. Wall anchors available at extra cost.

Installation detail:



- L = length
- BL = band length
- L_{ER} = installation frame length ($L_{ER} = L - 2$)
- BL_{ER} = installation frame band length ($BL_{ER} = BL - 2$)
- EES = installation frame end piece ($EES = ES - 13.5$)
- ETS = installation frame section
- ES = end piece
- TS = section
- DS = difference piece ($DS = BL_{ER} - [n \times TS]$)
- n = number of sections
- 1.) Wall anchor
- 2.) Assembly rail
- 3.) Plug-in connection

MOUNTING OPTIONS

for installation in walls and ventilation ducts

Screw mounting (-SM)

The ventilation grilles AL can optionally be supplied with screw mounting (-SM).

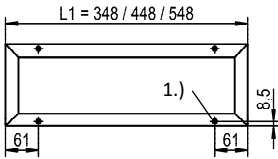
Band design is only possible with screw mounting (-SM).

SINGLE DESIGN (-N)

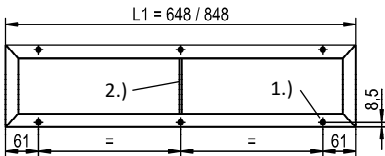
(Ventilation grille drawn without grille insert)

Intermediate rail only for AL-01 / AL-02 / AL-05 / AL-06.

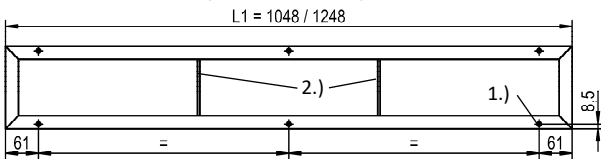
With 4 indentations (L= 325 / 425 / 525) / without intermediate rail



With 6 indentations (L= 625 / 825) / with 1 intermediate rail



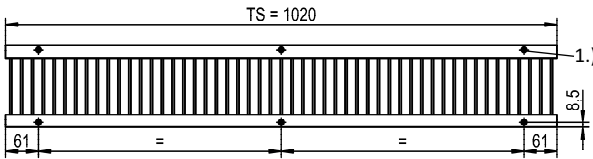
With 6 indentations (L= 1025 / 1225) / with 2 intermediate rails



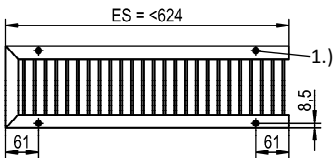
BAND DESIGN (-B)

only for: AL-11-...-B-...-SM / AL-12-...-B-...-SM /
 AL-15-...-B-...-SM / AL-16-...-B-...-SM

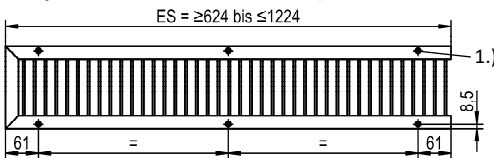
Section - with 6 indentations (TS=1020)



End piece - with 4 indentations (ES= <624)



End piece - with 6 indentations (ES= ≥624 to ≤1224)



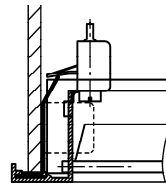
- 1.) Slotted shallow-raised countersunk-head tapping screw DIN ISO 7051 pitch 3.9 (on site).
- 2.) Intermediate rail

Construction subject to change
 No return possible

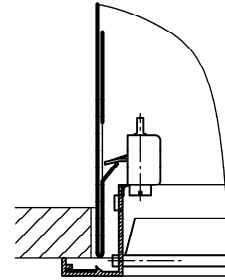
Concealed mounting (-VM)

The ventilation grilles AL are delivered with concealed mounting (-VM) as standard. **The concealed mounting is only possible with an installation frame or a plenum box.** (The installation frame must be ordered separately.)

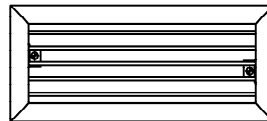
With installation frame:



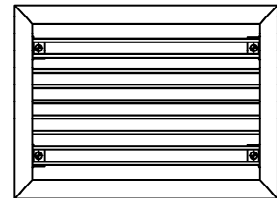
With plenum box:



One mounting point:
 H = 75 / 125

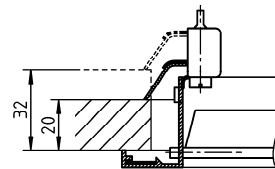


Two mounting points:
 H = 225 / 325

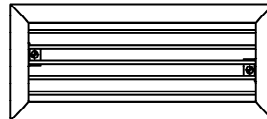


Clamp mounting (-KB)

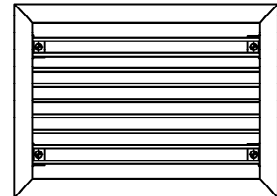
Clamp mounting KB is only possible without installation frame or plenum box.



One mounting point:
 H = 75 / 125



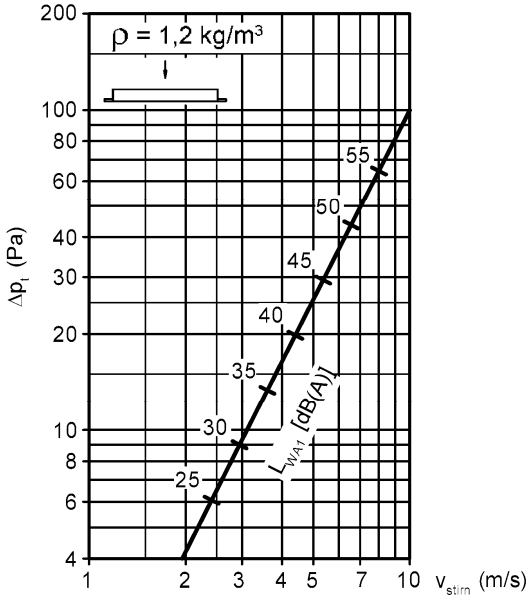
Two mounting points:
 H = 225 / 325



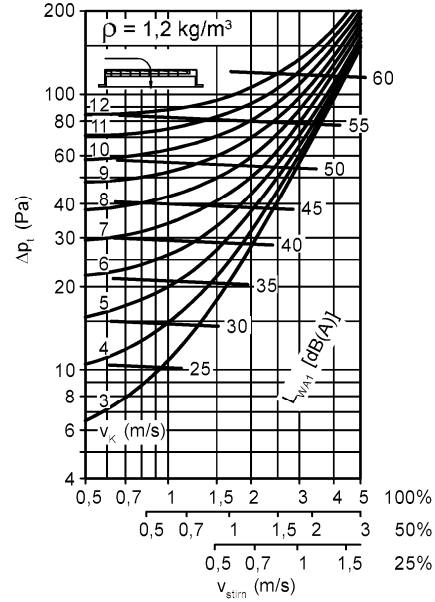
TECHNICAL DATA

Pressure loss and noise level

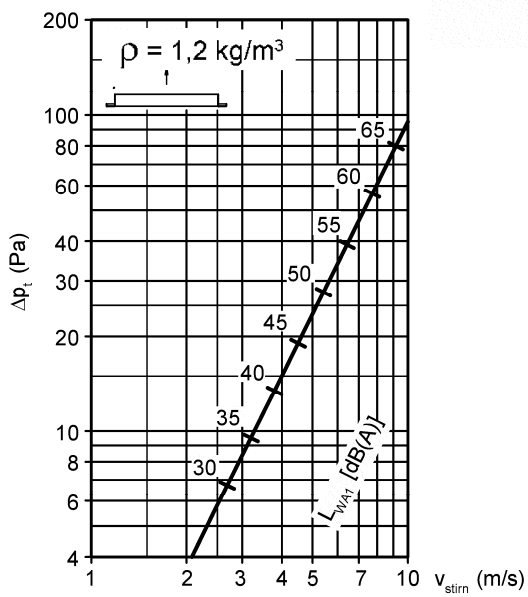
AL (supply air)



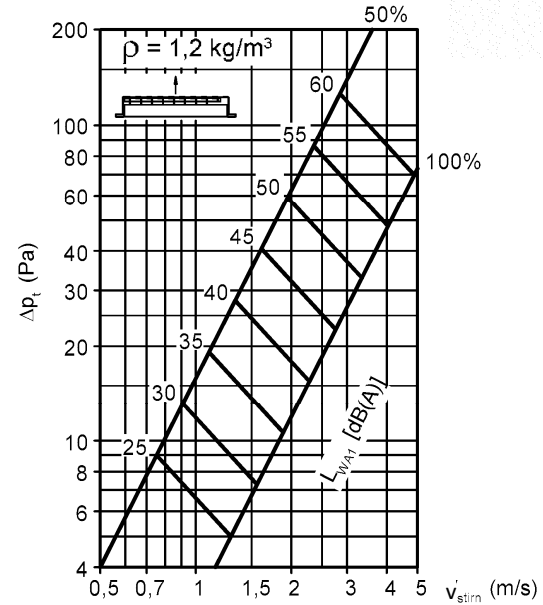
AL with hit-and-miss damper (supply air)



AL (return air)



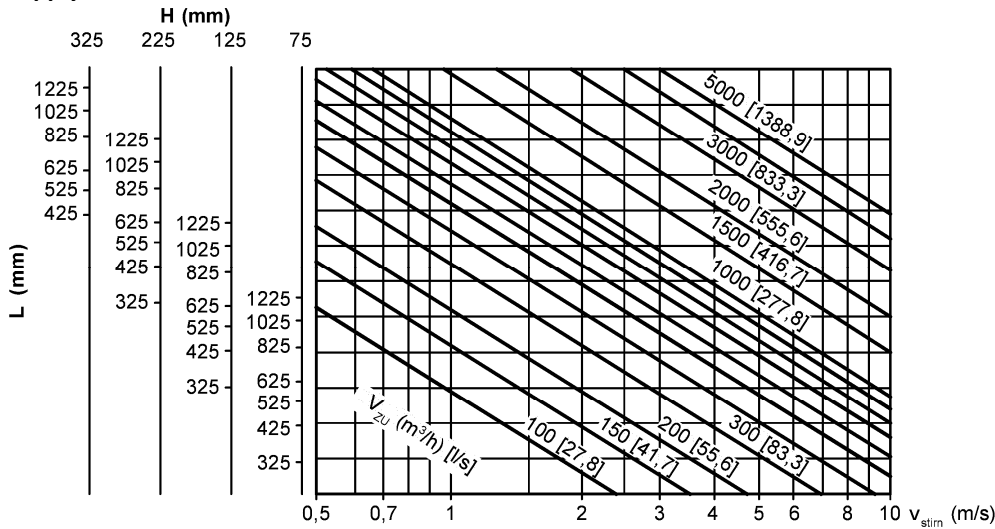
AL with hit-and-miss damper (return air)



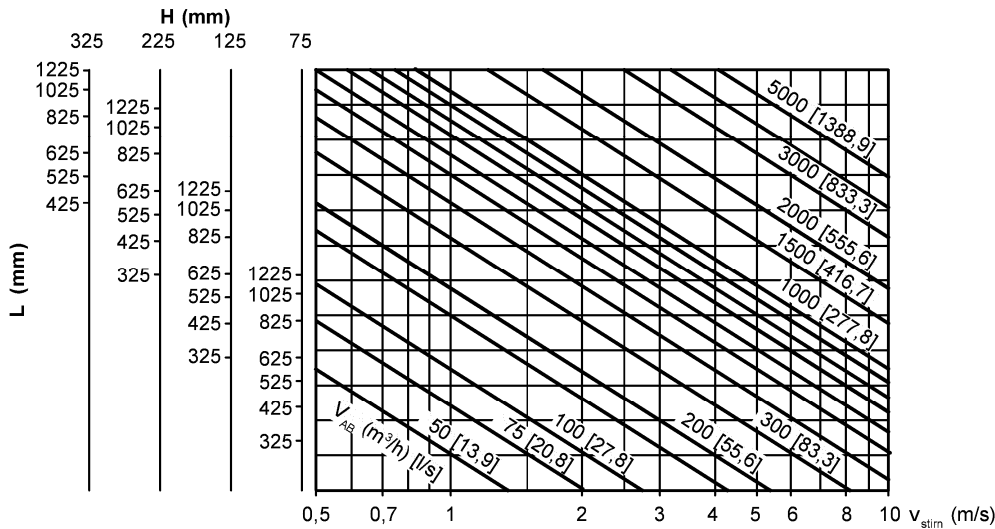
Hit-and-miss damper open in %

Front side velocity

Supply air



Return air



Face area

Supply and return air (m²)

		Length L (mm)						
		325	425	525	625	825	1025	1225
Height H (mm)	75	0.016	0.021	0.026	0.031	0.042	0.052	0.062
	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	-	0.121	0.151	0.182	0.242	0.313	0.363
		A_{stirn} (m²)						

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

Correction factor

Supply air

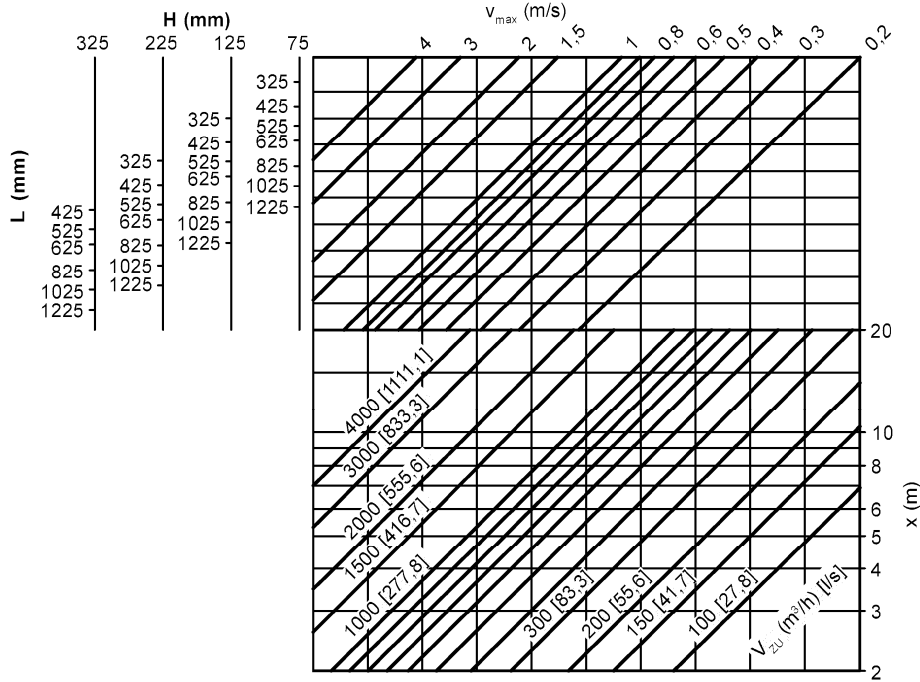
A_{stirn} (m²)	0.012	0.025	0.05	0.1	0.16	0.2	0.4
KF (-)	-9	-6	-3	0	+2	+3	+6

Return air

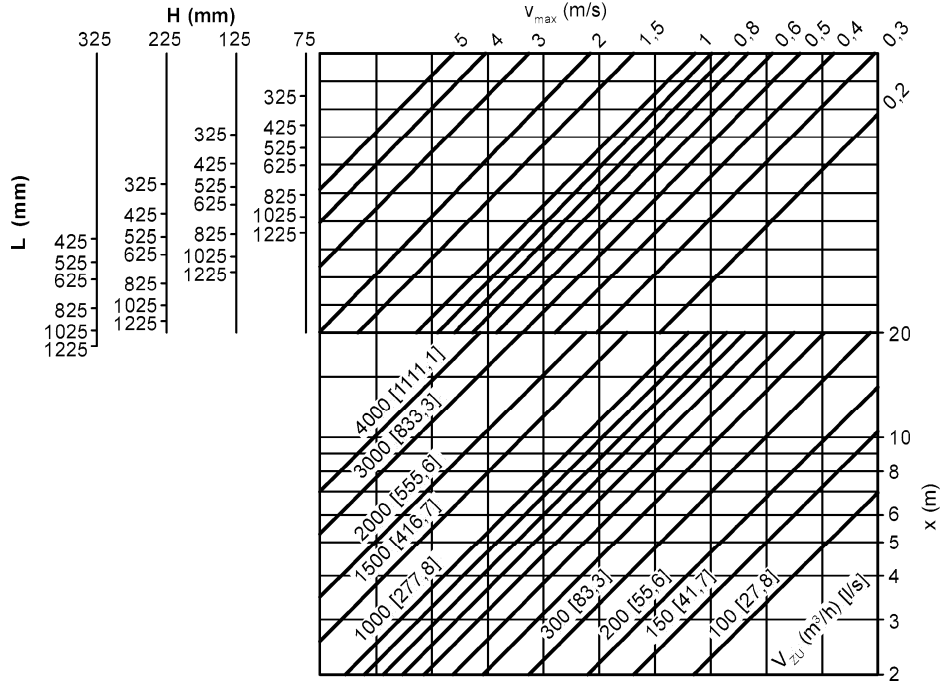
A_{stirn} (m²)	0.01	0.02	0.04	0.08	0.16	0.32	0.4
KF (-)	-9	-6	-3	0	+3	+6	+7

Maximum end velocity of jet

Supply air without coanda effect

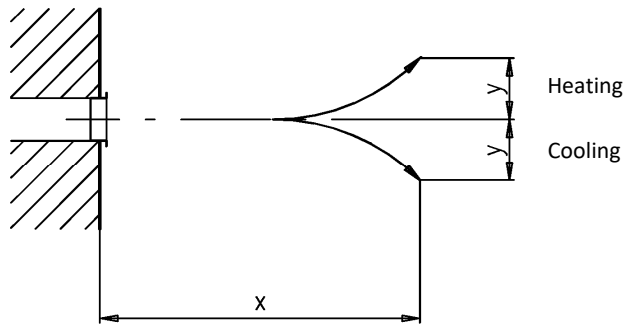
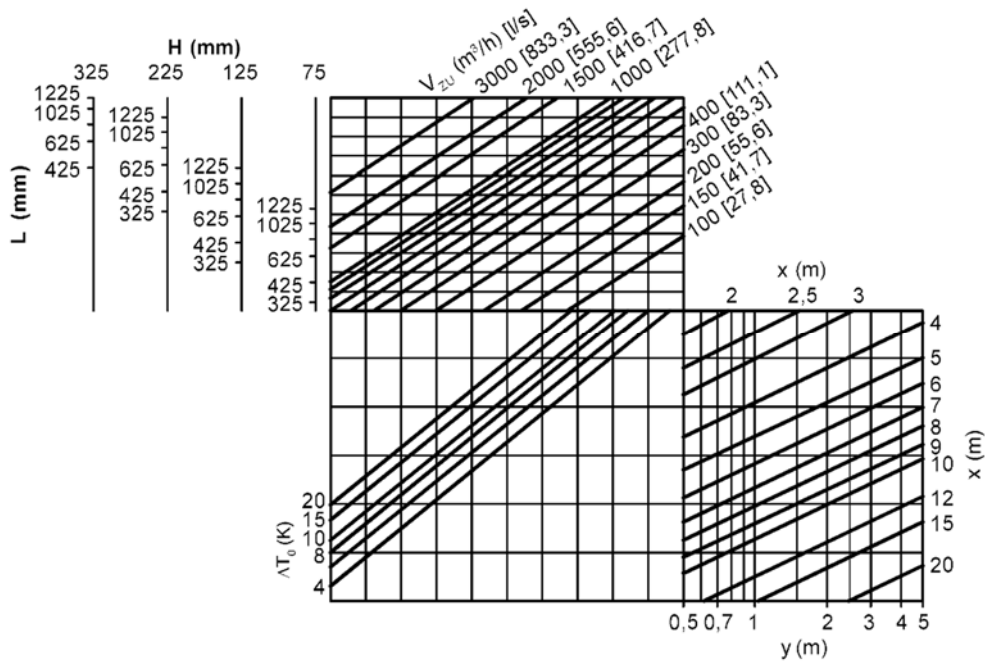


Supply air with coanda effect



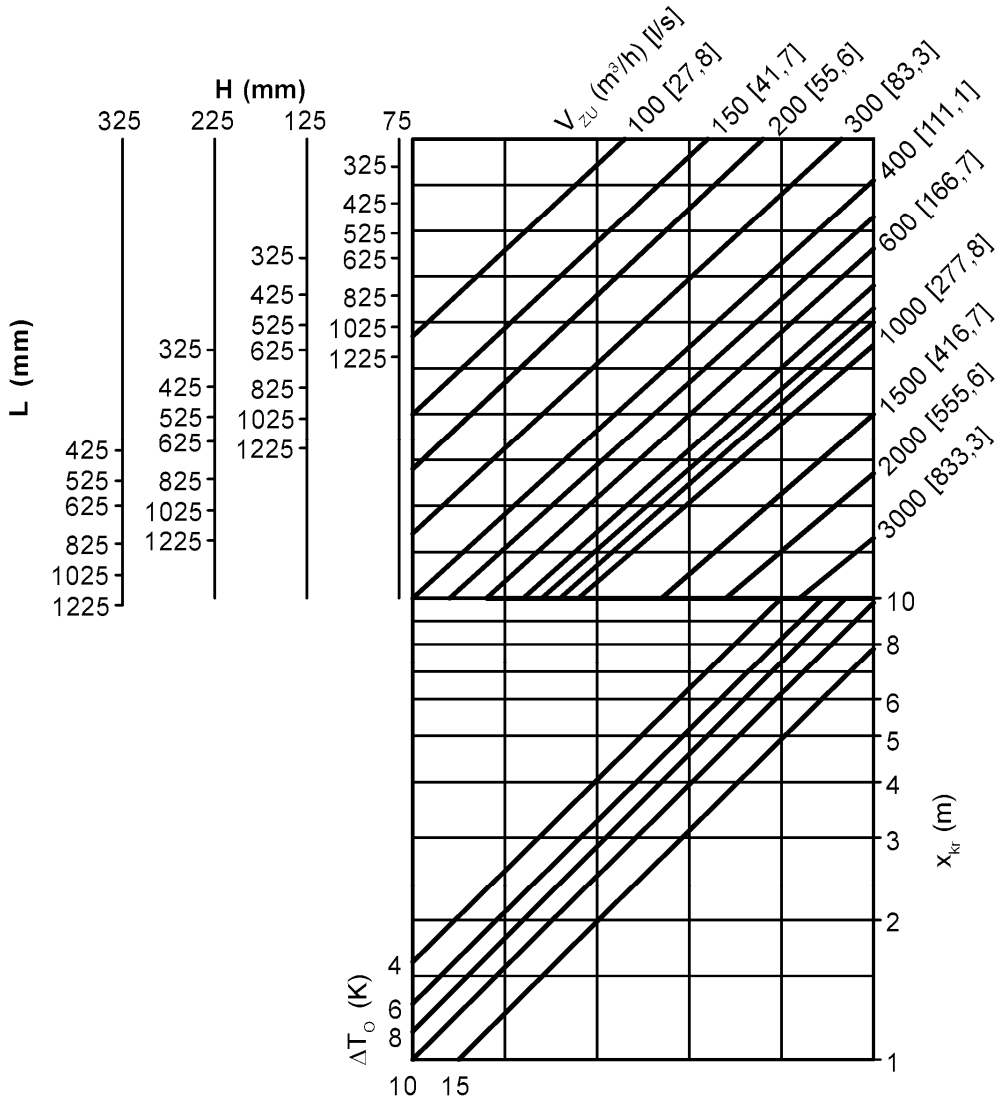
Jet path

Supply air without coanda effect

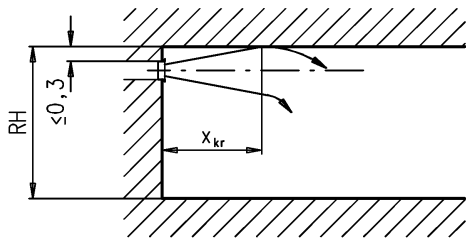


Critical throw

Supply air with coanda effect

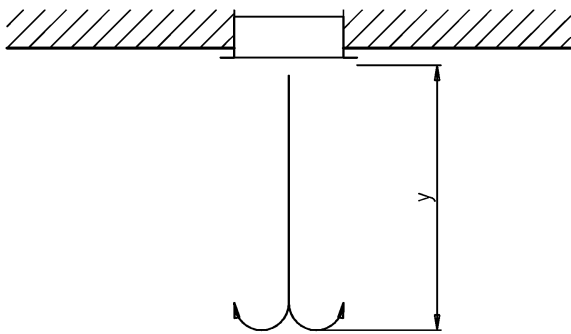
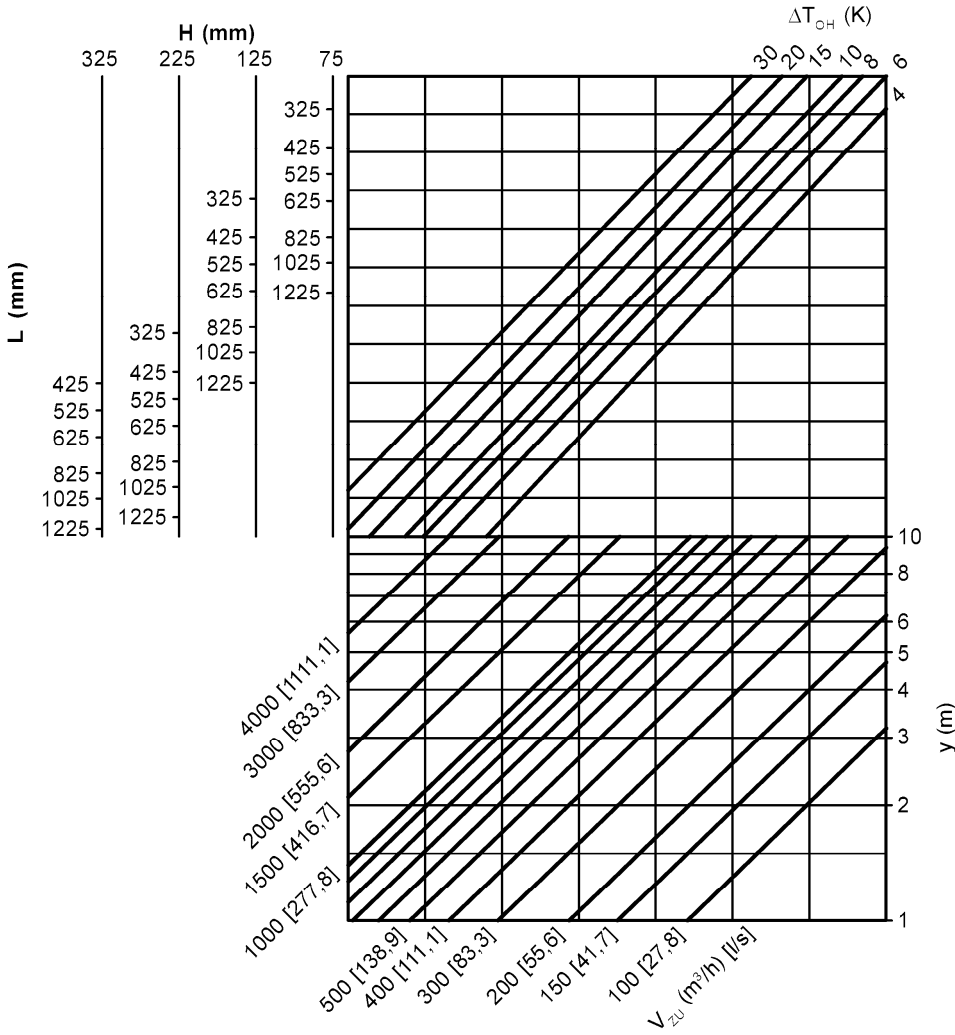


Jet detachment

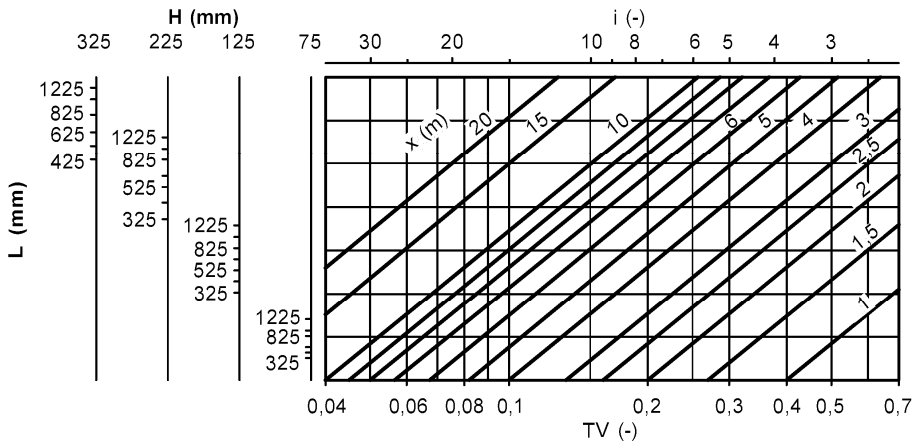


Maximum penetration

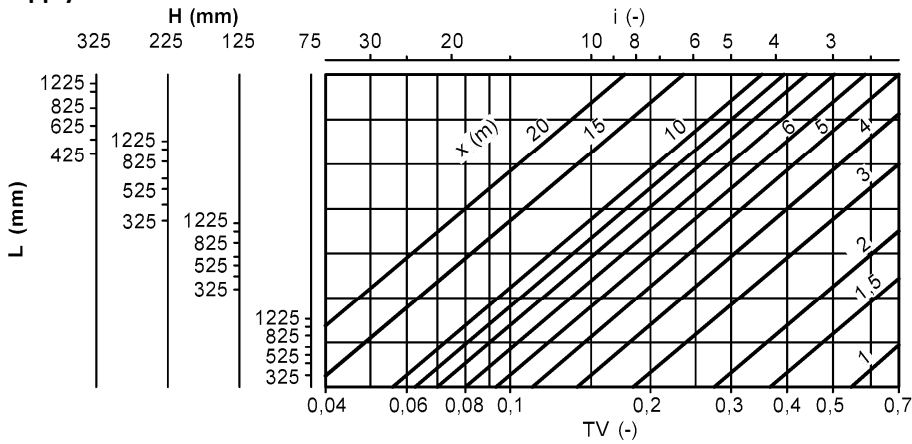
In heating mode



Induction and temperature ratio
Supply air without coanda effect

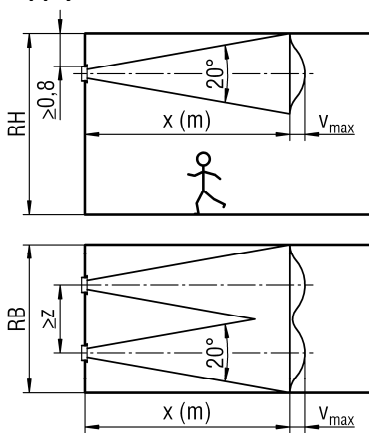


Supply air with coanda effect



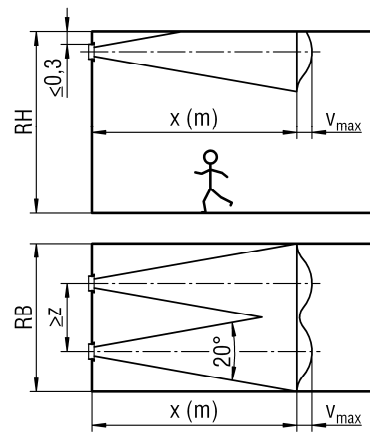
Minimum distances

Supply air without coanda effect



For the diagrams to be correct, the distance z between two grilles must be $\geq x (m) \times 0.2$.

Supply air with coanda effect

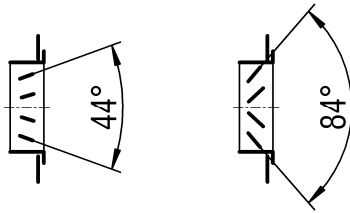


For the diagrams to be correct, the distance z between two grilles must be $\geq x (m) \times 0.2$.

Correction factor

(for scattered air jet)

with or without coanda effect



Blade position	44°	84°
End velocity of jet	$v_{\max} \text{ (m/s)} \times 0.65$	$v_{\max} \text{ (m/s)} \times 0.5$
Critical throw x_{kr}	$\times 0.77$	$\times 0.6$
$TV = \Delta T_x / \Delta T_0$	$\times 0.65$	$\times 0.5$
Induction ratio	$i \times 1.3$	$i \times 2$
Jet drop - Jet rise	$y \times 1.3$	$y \times 2$
Grille spacing $z \text{ (m)}$	$x \times 0.20$	$x \times 0.25$

Layout example

assume:

grille AL 5

H = 125 mm

L = 625 mm (with coanda effect)

$V_{ZU} = 400 \text{ m}^3/\text{h}$

$\Delta t = 4 \text{ K}$

x = 6.0 m

Find:

- Pressure loss
- Sound level
- End velocity of jet
- Critical throw
- Induction ratio
- Temperature ratio

Solution:

Pressure loss (page 11):

$\Delta p_t = 22 \text{ Pa}$

weighted sound power level (page 11 + page 12):

$V_{\text{Stirn}} = 1.8 \text{ m/s}$

$L_{WA1} = 36 \text{ dB(A)}$

$L_{WA} = 36 \text{ dB(A)} - 2 = 34 \text{ dB(A)}$

end velocity of jet (page 13):

$v_{\max} = 0.5 \text{ m/s}$

critical throw (page 15):

$x_{kr} = 5.8 \text{ m}$

induction ratio (page 17):

$i = 7.5$

temperature ratio (page 17):

$TV = 0.2$

Blade position

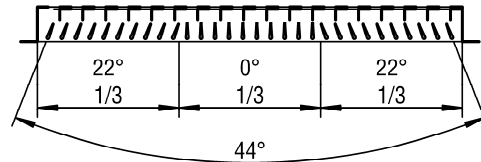
Blade position straight (-L000)



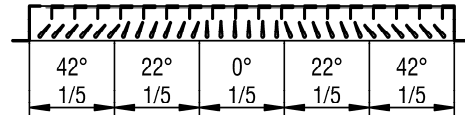
Blade position opposite to one another (-LGEG)



Blade position 44° diverging (-L044)

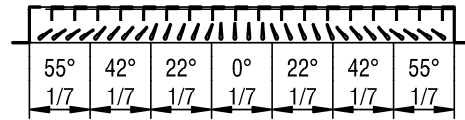


Blade position 84° diverging (-L084)



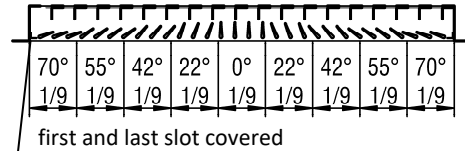
Blade position 110° diverging (-L110)

(only for AL-11 / AL-12 / AL-15 / AL-16)



Blade position 140° diverging (-L140)

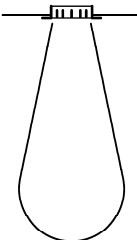
(only for AL-11 / AL-12 / AL-15 / AL-16)



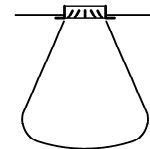
The angle of propagation of the air jet and thus the length of throw can be affected by adjusting the vertical air deflection blades.

Blade position:

straight



diverging



LEGEND

V_{ZU}	(m ³ /h) [l/s]	= Supply air volume
V_{AB}	(m ³ /h) [l/s]	= Return air volume
V_x	(m ³ /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}	(m ²)	= face area
x	(m)	= horizontal throw
y	(m)	= vertical throw
x_{kr}	(m)	= critical throw
ρ	(kg/m ³)	= 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 $A_{stirn} = 0.08 \text{ m}^2$
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 air supply 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
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) $\times 0.2$
RH	(mm)	= room height
RB	(mm)	= room width
L	(mm)	= length
H	(mm)	= Height

ORDER CODE AL

01	02	03	04	05
Type	Blades	Length	Height	Single / band design
Example				
AL	-01	-00625	-125	-N

06	07	08	09	10
Air throw pattern	Material	Paint	Mounting	Installation frame
-L000	-AL	-ELOX	-KB	-ERO

All fields must be filled when ordering.

Sample

AL-01-00625-125-N-L000-AL-ELOX-KB-ERO

Ventilation grille AL | horizontal pivoting air deflection blades on the front side | grille length 625 mm | grille height 125 mm | single design | blade position straight | aluminium | natural colour anodised | clamp mounting | without installation frame

ORDER DETAILS

01 - Type

AL = ventilation grille AL

02 - Blades

- 01 = horizontal pivoting air deflection blades on the front side.
- 02 = same as AL-01-..., additionally with vertical, pivoting air deflection blades.
- 05 = same as AL-01-..., additionally with hit-and-miss damper.
- 06 = same as AL-01-..., additionally with vertical pivoting air deflection blades and hit-and-miss damper.
- 11 = vertical, pivoting air deflection blades on the front side
- 12 = same as AL-11-..., additionally with horizontal, pivoting air deflection blades.
- 15 = same as AL-11-..., additionally with hit-and-miss damper.
- 16 = same as AL-11-..., additionally with horizontal pivoting air deflection blades and hit-and-miss damper.

03 - Length

- 00325 = grille length 325 mm
- 00425 = grille length 425 mm
- 00525 = grille length 525 mm
- 00625 = grille length 625 mm
- 00825 = grille length 825 mm
- 01025 = grille length 1025 mm
- 01225 = grille length 1225 mm
- xxxxx = length in mm, freely selectable, for band design (for a grille length BL > 1225 mm: 2-part for a length of band BL ≤ 2424 mm, multi-part for a length of band > 2424 mm) (always with 5 digits).

04 - Height

- 075 = grille height 75 mm
- 125 = grille height 125 mm
- 225 = grille height 225 mm
- 325 = grille height 325 mm

05 - Single / band design

- N = single design (standard).
- B = band design (only possible for AL-11 / AL-12 / AL-15 / AL-16, for a grille length BL > 1225 mm, module length max. 1225 mm, available lengths according to SCHAKO standard for band design).

06 - Air throw pattern

- L000 = blade position straight (standard).
- L044 = blade position 44° diverging.
- L084 = blade position 84° diverging.
- L110 = blade position 110° diverging (only AL-11 / AL-12 / AL-15 / AL-16).
- L140 = blade position 140° diverging (only AL-11 / AL-12 / AL-15 / AL-16).
- LGEG = blade position opposite to one another.

07 - Material

AL = aluminium

08 - Paint

- ELOX = natural colour anodised (E6/EV1) (standard).
- xxxx = painted to a RAL-colour, freely selectable (always with 4 digits).

09 - Mounting

- SM = screw mounting (standard for band design).
- VM = concealed mounting (standard, only possible with plenum box or installation frame).
- KB = clamp mounting (standard for model without plenum box and without installation frame).

10 - Installation frame

- ERO = 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.

ORDER CODE AK

01	02	03	04	05	06	07
Type	Air diffuser	Length	Height	Single / band design	Mounting	Material
Example						
AK	-33	-00325	-075	-N	-VM	-SV

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

Sample

AK-33-00325-075-N-VM-SV-DK1-GD1-I0-KHS-SDS-S1

Plenum box, rectangular design I for ventilation grille AL I grille length 325 mm I grille height 075 mm I single design I with concealed mounting I galvanised sheet steel I with damper I with rubber lip seal I without insulation I standard height of plenum box I standard spigot diameter I lateral spigot

ORDER DETAILS

01 - Type

AK = plenum box, rectangular design

02 - Air diffuser

33 = for ventilation grille AL

03 - Length

00325 = grille length 325 mm
 00425 = grille length 425 mm
 00525 = grille length 525 mm
 00625 = grille length 625 mm
 00825 = grille length 825 mm
 01025 = grille length 1025 mm
 01225 = grille length 1225 mm
 xxxxx = length in mm, freely selectable, for band design (for a grille length BL > 1225 mm: 2-part for a length of band BL ≤ 2424 mm, multi-part for a length of band > 2424 mm) (always with 5 digits).

04 - Height

075 = grille height 75 mm
 125 = grille height 125 mm
 225 = grille height 225 mm
 325 = grille height 325 mm

05 - Single / band design

N = single design (standard).
 B = band design (only possible for AL-11 / AL-12 / AL-15 / AL-16, for a grille length BL > 1225 mm, available lengths according to SCHAKO standard for band design).

06 - Mounting

SM = screw mounting (standard for band design, screws must be provided on site).
 VM = concealed mounting (standard for single design).

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 plenum box

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

12 - Spigot diameter

SDS = spigot diameter standard.
 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 = front side spigot (not possible for band design).

SPECIFICATION TEXT

Ventilation grille **type AL-...** for supply and return air, for installation in rectangular ducts or plenum boxes. With front side horizontal or vertical, pivoting, individually adjustable air deflection blades. For description of frames and blades, see "Material / paint". Assembly parts made of electrolytically galvanized sheet steel.

Product: SCHAKO **type AL-...**

Blades:

- horizontal pivoting air deflection blades on the front side (-01).
- same as AL-01-..., additionally with vertical, pivoting air deflection blades (-02).
- same as AL-01-..., additionally with hit-and-miss damper (-05).
- same as AL-01-..., additionally with vertical pivoting air deflection blades and hit-and-miss damper (-06).
- vertical, pivoting air deflection blades on the front side (-11).
- same as AL-11-..., additionally with horizontal, pivoting air deflection blades (-12).
- same as AL-11-..., additionally with hit-and-miss damper (-15).
- same as AL-11-..., additionally with horizontal pivoting air deflection blades and hit-and-miss damper (-16).

Length and single / band design:

Single design (-N) (standard):

- 325 mm (-N-00325)
- 425 mm (-N-00425)
- 525 mm (-N-00525)
- 625 mm (-N-00625)
- 825 mm (-N-00825)
- 1025 mm (-N-01025)
- 1225 mm (-N-01225)

Band design (-B) (only possible for AL-11 / AL-12 / AL-15 / AL-16):

- length in mm, freely selectable (-B-xxxxx), for band design (for a grille length BL > 1225 mm: 2-part for a length of band BL ≤ 2424 mm, multi-part for a length of band > 2424 mm, module length max. 1225 mm) (always with 5 digits).

Height:

- 75 mm (-075)
- 125 mm (-125)
- 225 mm (-225)
- 325 mm (-325)

Material / paint (faceplate):

- Aluminium (-AL-...)
 - natural colour anodised (E6/EV1, only possible with concealed mounting (-ELOX) (standard).
 - painted to a RAL colour of your choice, freely selectable (-xxxx-..., at an extra charge).

Mounting:

- screw mounting (-SM, standard for band design)
 - screws must be provided on site.
- concealed mounting (-VM) (-VM, standard, only possible with a plenum box or an installation frame).
- clamp mounting (-KB, standard for model without plenum box and without installation frame).

Accessories:

- Plenum box (AK-33), in rectangular design, made of galvanized sheet steel (-SV, standard), housing with round connection spigot and mounting brackets.
 - Length:
 - 325 mm (-00325)
 - 425 mm (-00425)
 - 525 mm (-00525)
 - 625 mm (-00625)
 - 825 mm (-00825)
 - 1025 mm (-01025)
 - 1225 mm (-01225)
 - length in mm, freely selectable (-xxxxx), for band design (for a grille length BL > 1225 mm: 2-part for a length of band BL ≤ 2424 mm, multi-part for a length of band > 2424 mm) (always with 5 digits).
 - Height:
 - 75 mm (-075)
 - 125 mm (-125)
 - 225 mm (-225)
 - 325 mm (-325)
 - Single / band design:
 - Single design (-N) (standard).
 - band design (-B) (only possible for AL-11 / AL-12 / AL-15 / AL-16, for a grille length BL > 1225 mm, available lengths according to SCHAKO standard for band design).
 - Mounting:
 - screw mounting (-SM) (standard for band design, screws must be provided on site).
 - concealed mounting (-VM) (standard for single design).
 - Damper:
 - without damper (-DK0) (standard).
 - with damper (-DK1), made of galvanized sheet steel, in the plenum box housing, adjustable, for simple air volume regulation, standard with lateral spigot position (-S1).
 - with damper (-DK2), same as DK1, but with cable-operated adjustment, standard with spigot position from above (-S0) and front side spigot position (-S4).
 - 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 (-IO) (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 plenum box:
 - Standard height of plenum box (-KHS).
 - height of plenum box in mm, freely selectable (-xxx) (minimum height [KHS] with spigot position -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 plenum box (-S1) (standard).
 - Front side spigot (-S4) (not possible for band design).
- Installation frame (-ER0 / -ER1 / -ER2)
 - without installation frame (-ER0).
 - with installation frame made of galvanised sheet steel (only possible in the absence of a plenum box):
 - without wall anchors (-ER1).
 - with wall anchors (-ER2).