**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).

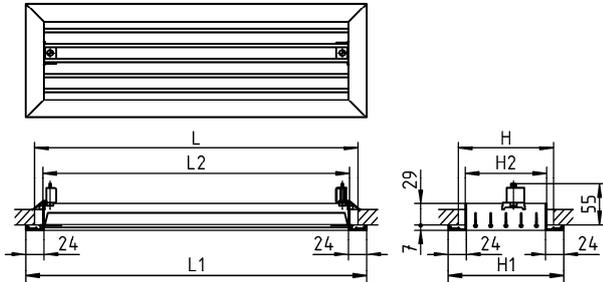
### Installation frame (-ER0 / -ER1 / -ER2)

- 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)

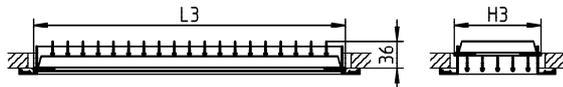
#### AL-01-...



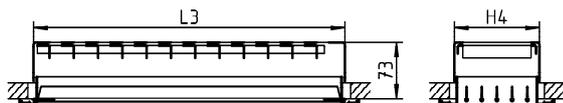
AL-01 / AL-02 / AL-05 / AL-06 with intermediate rail for lengths from 625 (see page 10)

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

#### AL-02-...



#### AL-05-...



#### AL-06-...

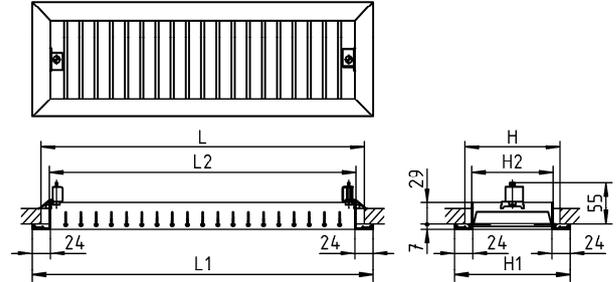


#### Available sizes AL-...

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					

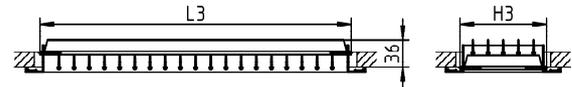
All combined lengths and heights available!  
 Other sizes available on request.

#### AL-11-...

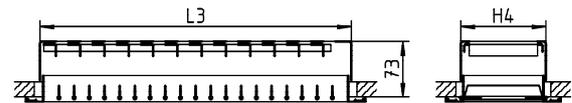


All models are based on basic type AL-11-...:

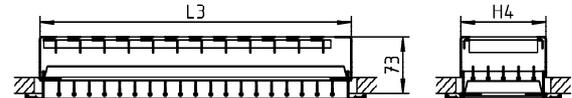
#### AL-12-...



#### AL-15-...



#### AL-16-...



## BAND DESIGN (-B)

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

### Available lengths according to SCHAKO standard:

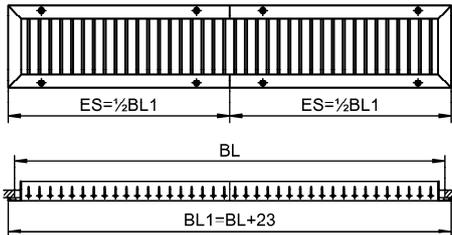
In the band design of the ventilation grille AL, the total length BL is assembled from two end pieces in the 2-part model and from sections (TS) of 1020 mm and end pieces (ES) in the multi-part model.

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

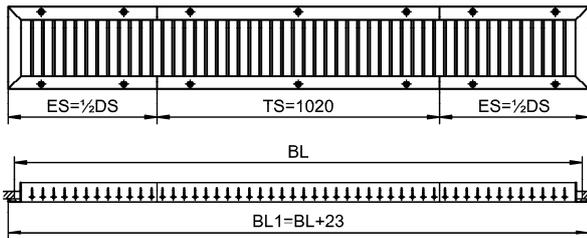
### Without plenum box

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

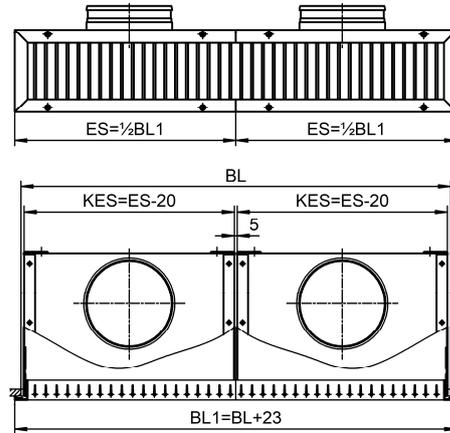
For spigot position / plenum box shape, see pages 6+7  
 For mounting options, see page 10

Construction subject to change  
 No return possible

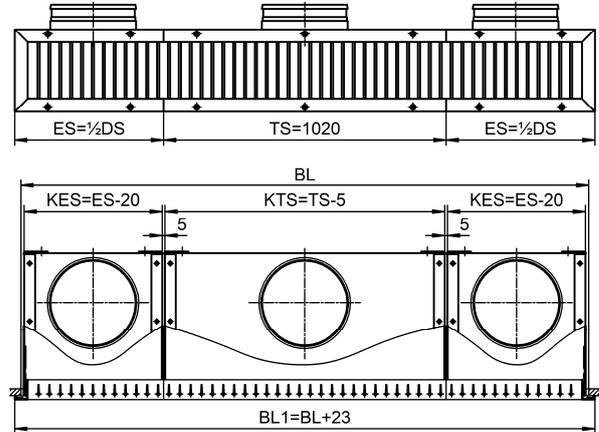
### with plenum box

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 /  $\phi D$  as the plenum box section (KTS) (for dimensions, see the table of available sizes, page 7, marking \*).

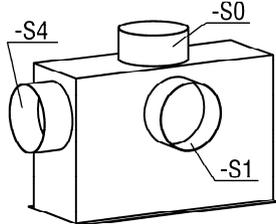
**DIMENSIONS OF ACCESSORIES**

**Plenum box (-AK-33)**

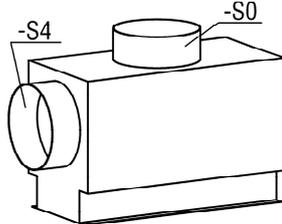
**SINGLE DESIGN (-N)**

**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)

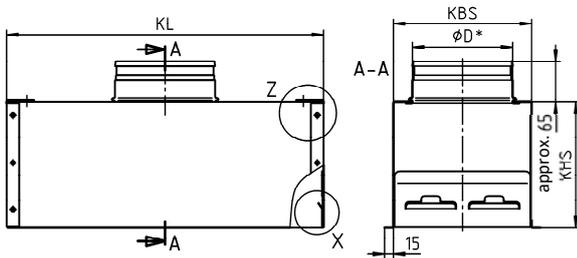
Spigot diameter for spigot position "Spigot front side (-S4)" is **identical** with "Lateral spigot on the box (-S1)".

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

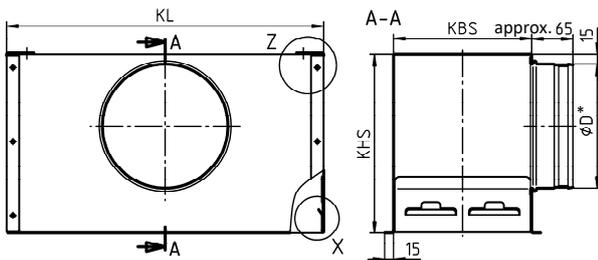
For the table of available sizes, see page 7.

**Straight plenum box:**

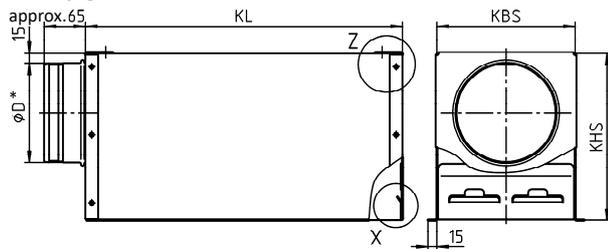
**with spigot from above (-S0)**



**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

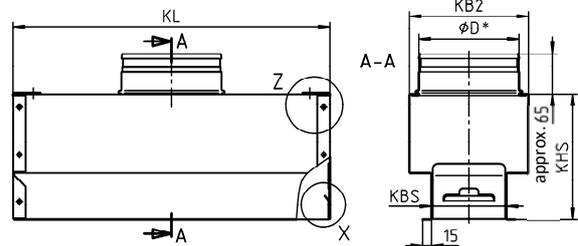
**Offset plenum box:**

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

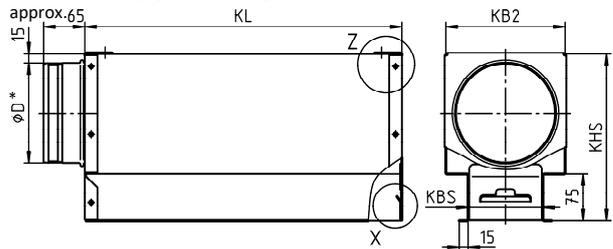
For model -S0:  $KB2 = \phi D + 30$

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

**with spigot from above (-S0)**



**with lateral spigot on the plenum box (-S4)**

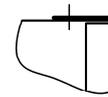


\* external

**Plenum box mounting:**

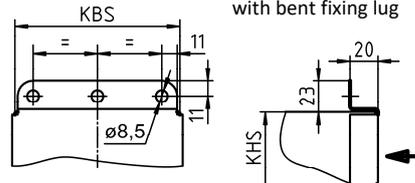
**Detail Z**

As-delivered condition with fitted mounting bracket



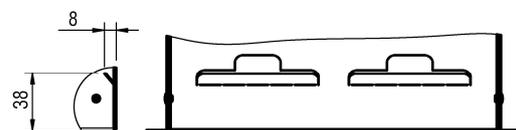
**Detail Z**

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.

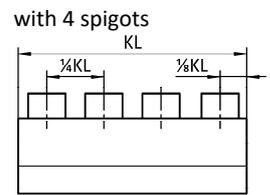
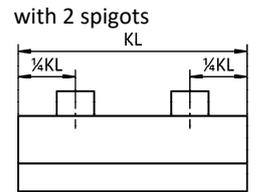
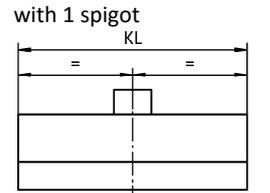
**The dimension KBS cannot be changed.**

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

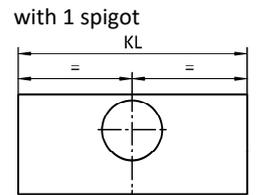
Available sizes for AK-33

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*		265	188	1x Ø158					
		825	820									4x Ø98*			
		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*		285	228	1x Ø198					
		825	820									4x Ø98*			
		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*	--	1x Ø248	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														

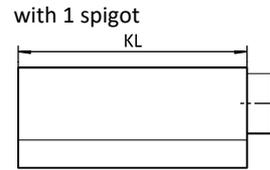
**Number of spigots:**  
**Spigot from above (-S0)**



**Lateral spigot (-S1)**  
 (standard)



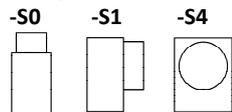
**Spigot front side (-S4)**  
 Band design not possible.



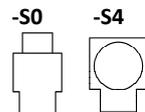
\* dimensions for band design / n = number of spigots

**Plenum box shape**

**Straight:**



**Offset:**



Minimum height KHS with spigot position -S1 / -S4:

**KHS<sub>min.</sub> = ØD + 87 mm, but at least 200 mm**

Minimum width KB2 with spigot position -S0 / -S4:

**KB2<sub>min.</sub> = ØD + 30 mm**

Minimum difference between KBS and KB2 = 40 mm.

**The dimension KBS cannot be changed.**

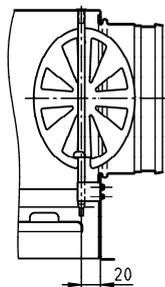
**With spigot positions -S0 and -S4, if the spigot diameter is increased, only the offset plenum box shape is available.**

**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:**

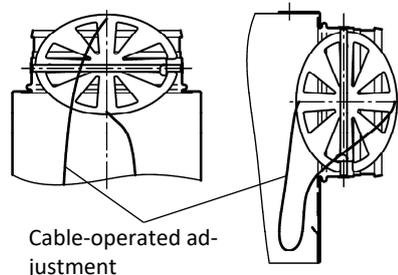
Lateral spigot -S1



**-DK2 (with cable-operated adjustment):**

spigot from above -S0

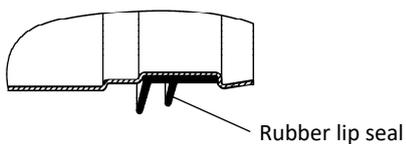
spigot front side -S4



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

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

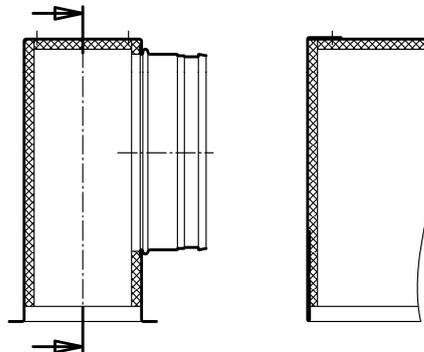
**Detail Y**



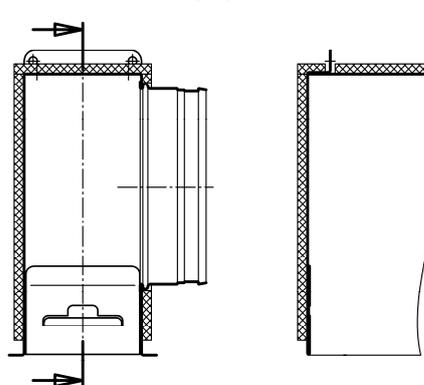
**Insulation (-I0 / -li / -Ia), for AK-...**

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

**Internal insulation (-li)**



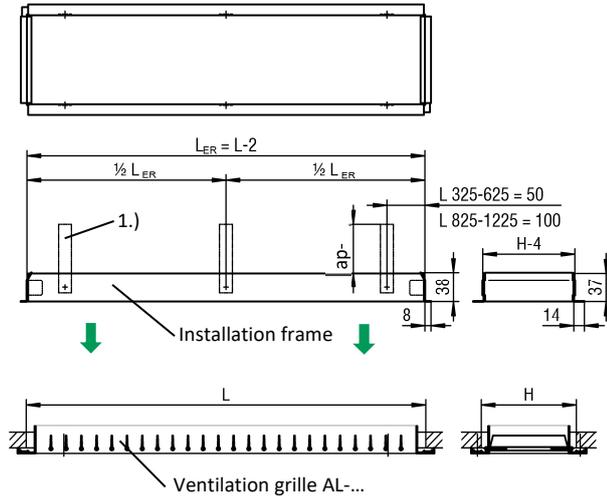
**External insulation (-Ia)**



**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.

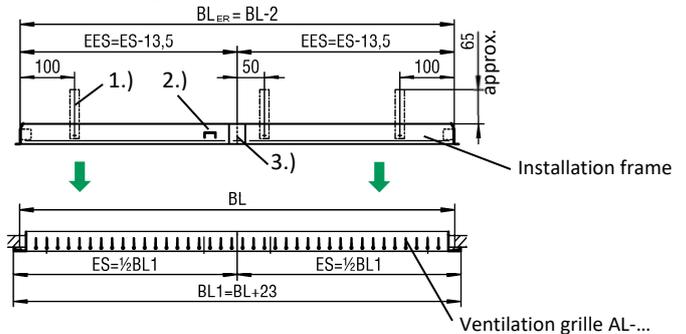
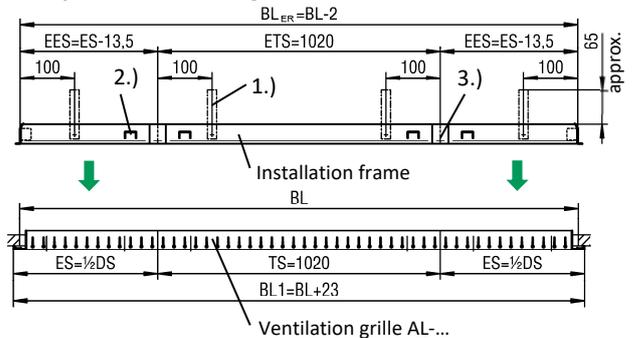
**SINGLE DESIGN (-N)**


Length  $L \leq 825 \text{ mm} = 4$  wall anchors

Length  $L > 825 \text{ mm} = 6$  wall anchors

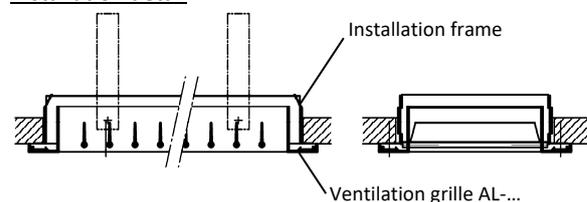
Installation frame made of electrolytically galvanised sheet steel.

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).

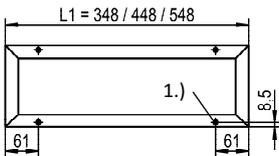
**Band design is only possible with screw mounting (-SM).**

#### SINGLE DESIGN (-N)

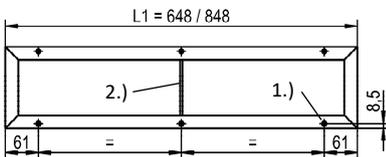
(Ventilation grille drawn without grille insert)

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

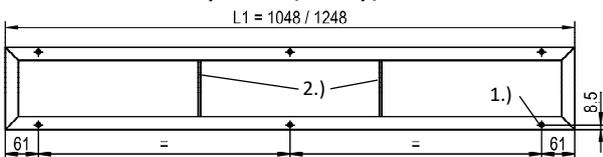
**With 4 indentations (L= 325 / 425 / 525) / without intermediate rail**



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



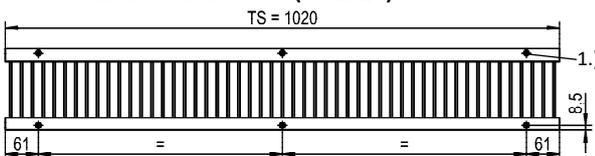
**With 6 indentations (L= 1025 / 1225) / with 2 intermediate rails**



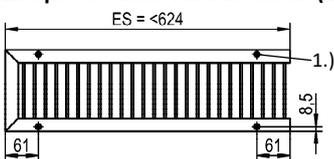
#### BAND DESIGN (-B)

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

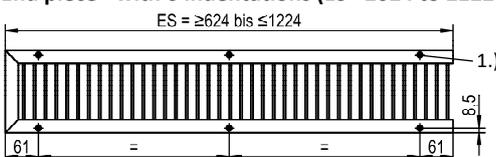
**Section - with 6 indentations (TS=1020)**



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



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



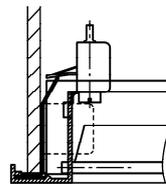
- 1.) Slotted shallow-raised countersunk-head tapping screw DIN ISO 7051 pitch 3.9 (on site).
- 2.) Intermediate rail

Construction subject to change  
No return possible

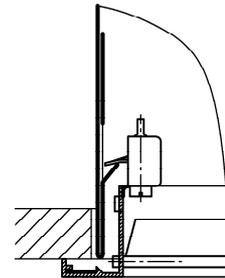
### Concealed mounting (-VM)

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.)

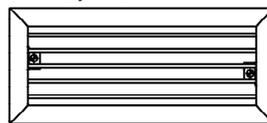
**With installation frame:**



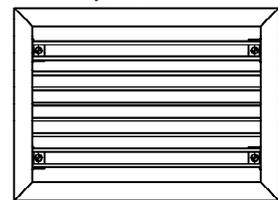
**With plenum box:**



**One mounting point:**  
H = 75 / 125

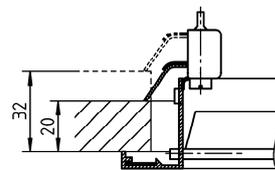


**Two mounting points:**  
H = 225 / 325

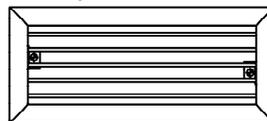


### Clamp mounting (-KB)

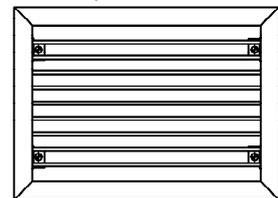
Clamp mounting KB is only possible without installation frame or plenum box.



**One mounting point:**  
H = 75 / 125



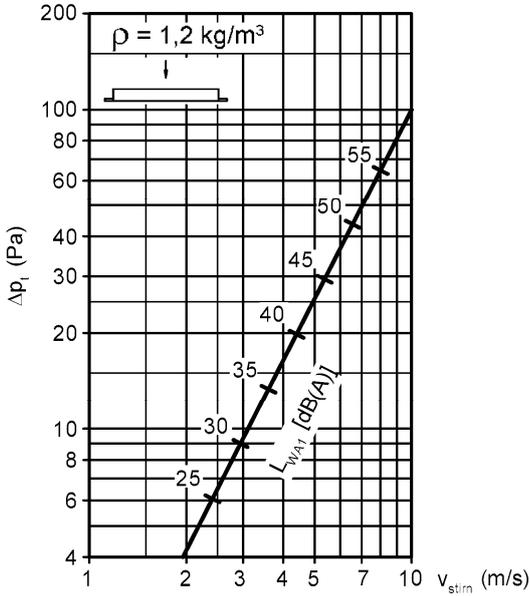
**Two mounting points:**  
H = 225 / 325



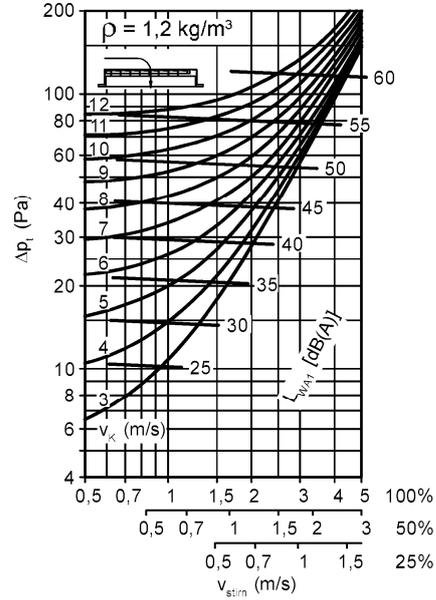
**TECHNICAL DATA**

**Pressure loss and noise level**

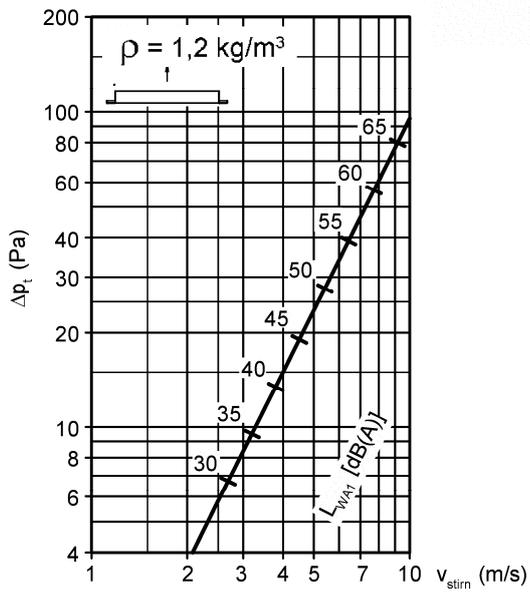
**AL (supply air)**



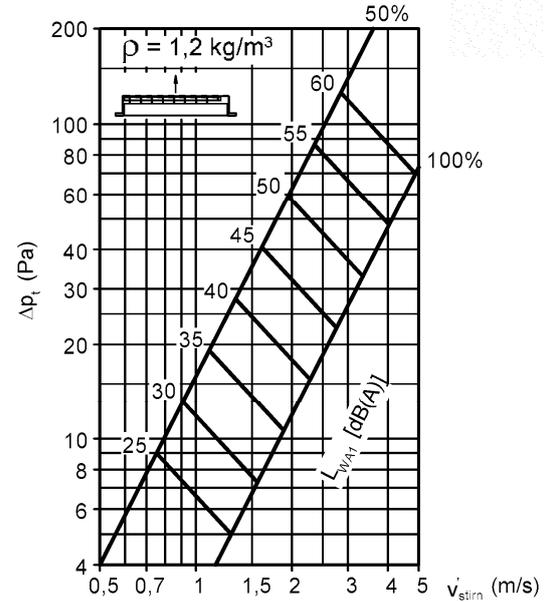
**AL with hit-and-miss damper (supply air)**



**AL (return air)**



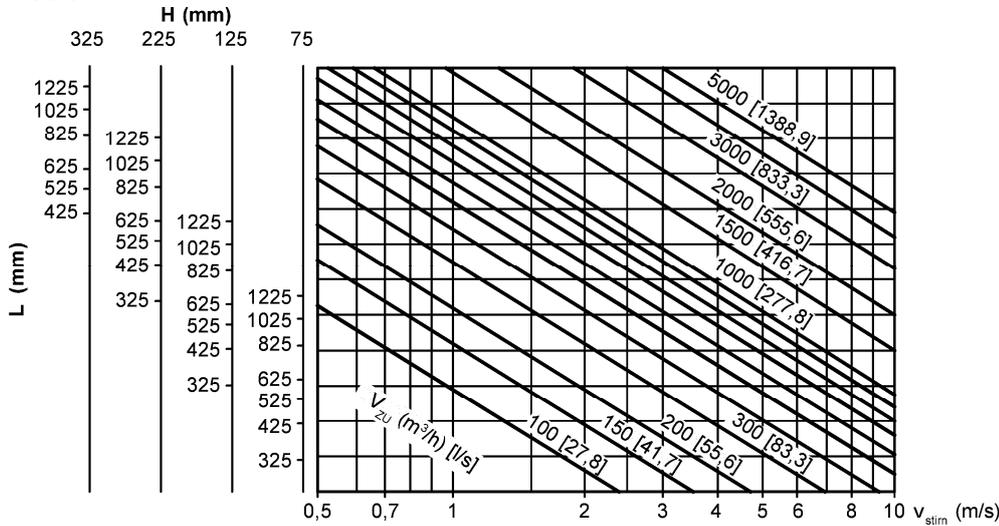
**AL with hit-and-miss damper (return air)**



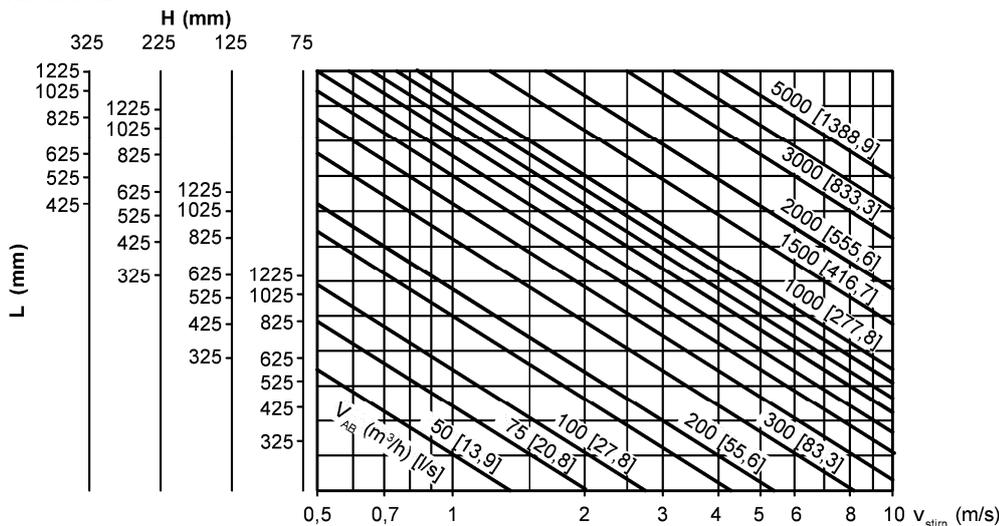
Hit-and-miss damper open in %

**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**

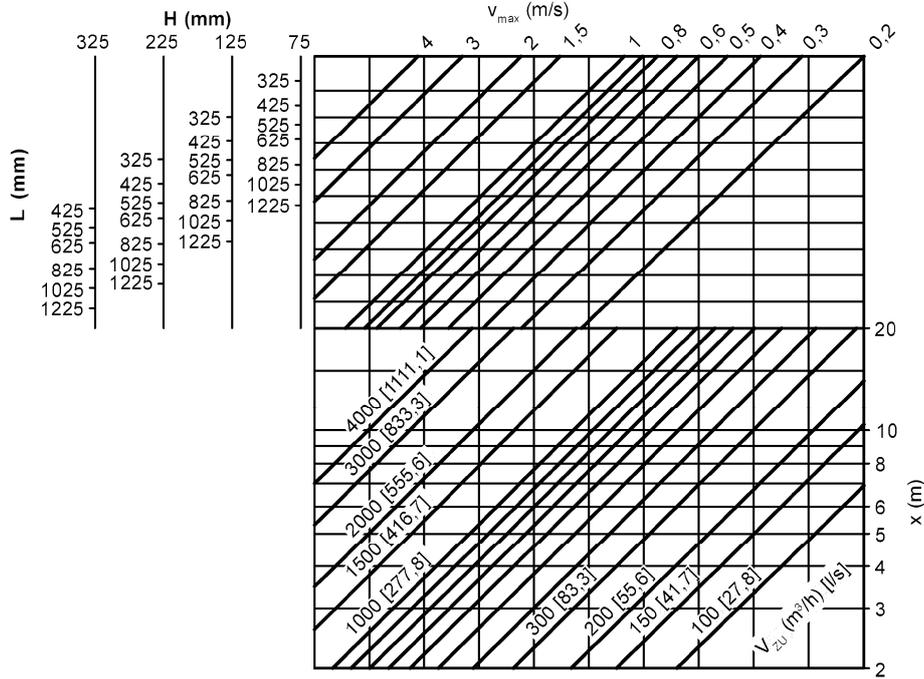
$A_{stirn}$ (m²)	0.012	0.025	0.05	0.1	0.16	0.2	0.4
KF (-)	-9	-6	-3	0	+2	+3	+6

**Return air**

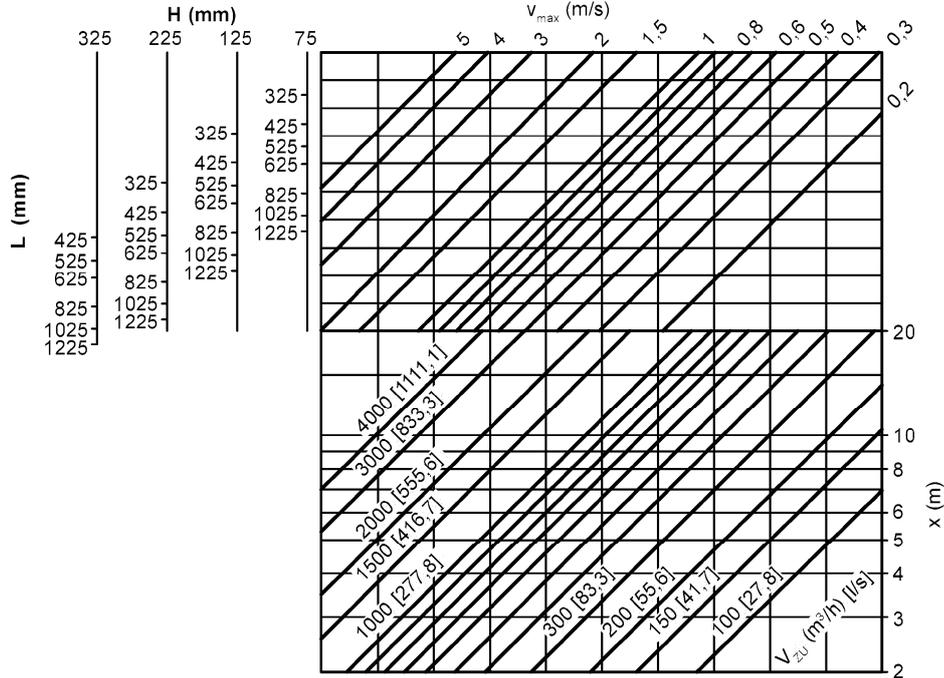
$A_{stirn}$ (m²)	0.01	0.02	0.04	0.08	0.16	0.32	0.4
KF (-)	-9	-6	-3	0	+3	+6	+7

**Maximum end velocity of jet**

**Supply air without coanda effect**

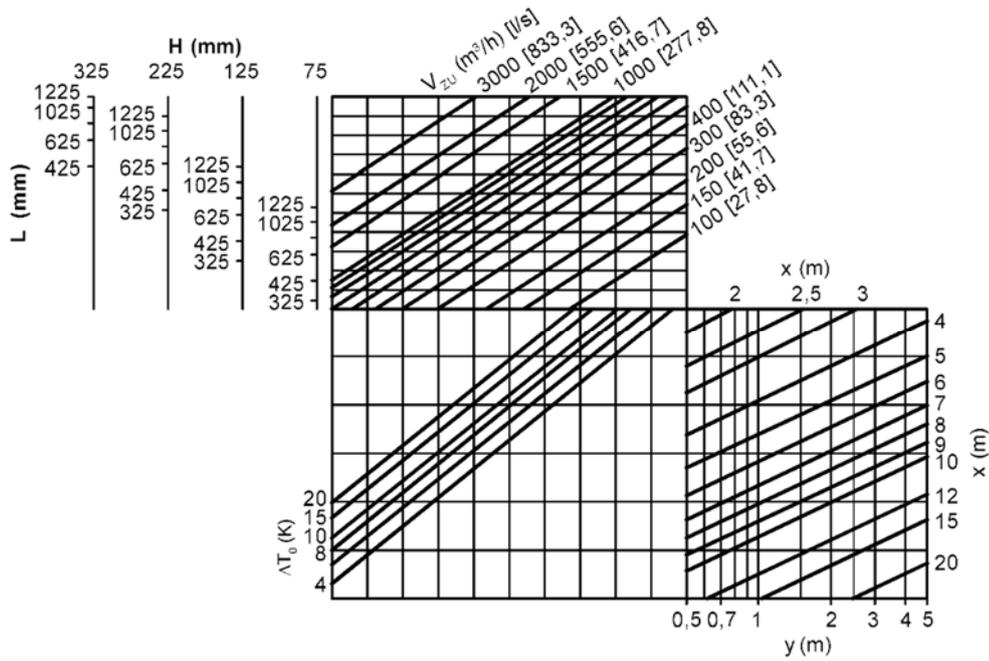


**Supply air with coanda effect**



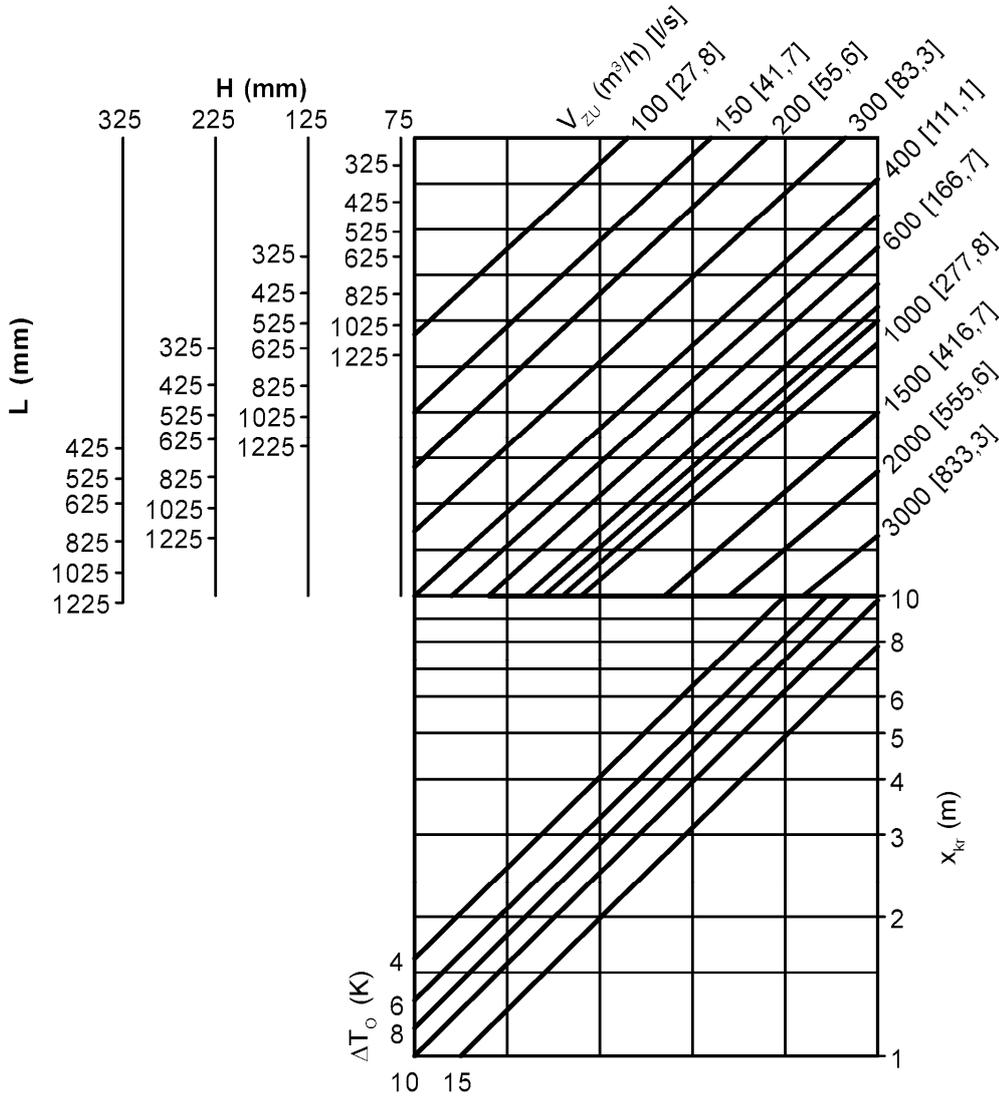
**Jet path**

**Supply air without coanda effect**

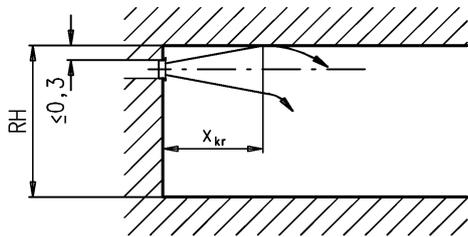


**Critical throw**

**Supply air with coanda effect**

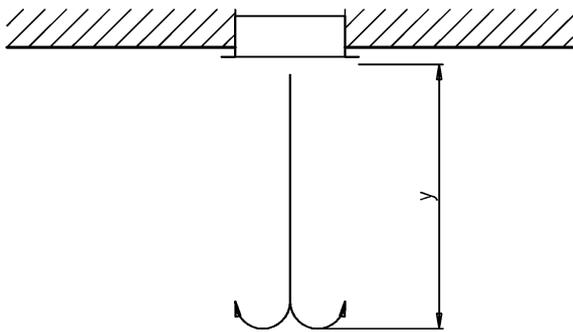
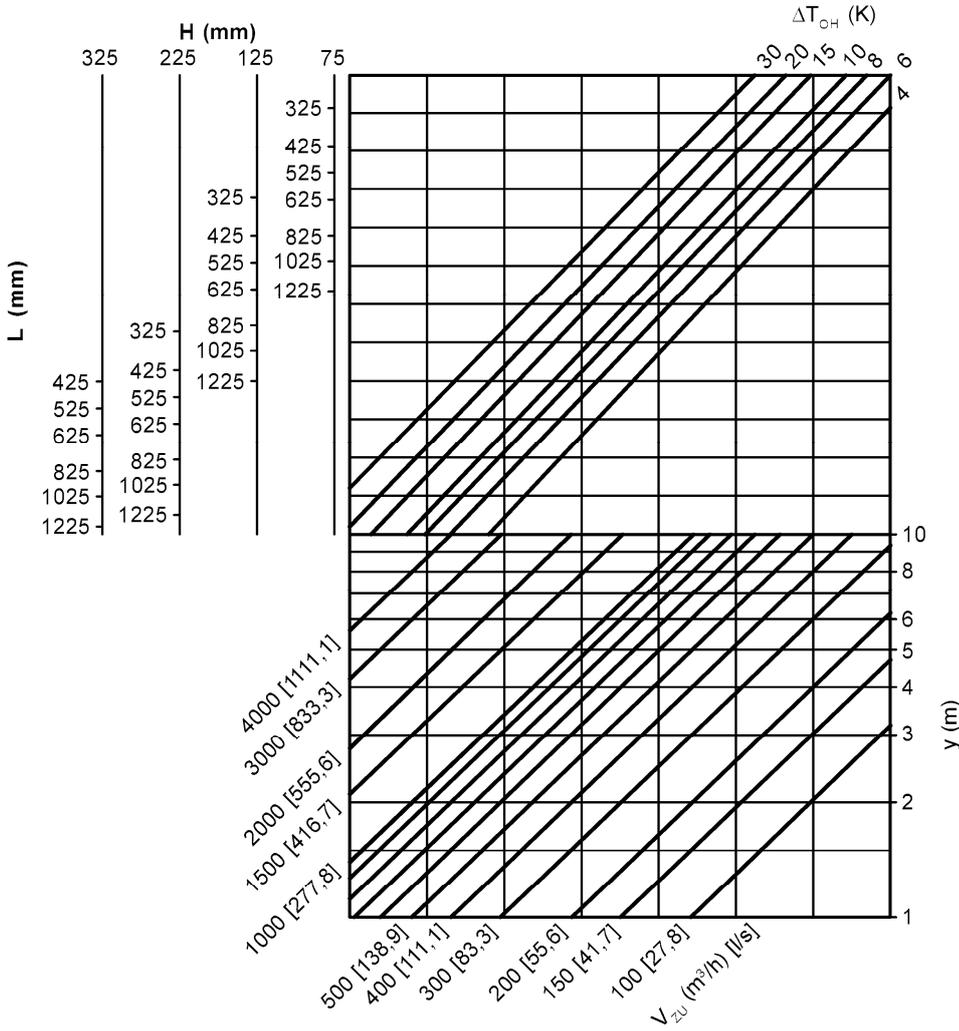


**Jet detachment**

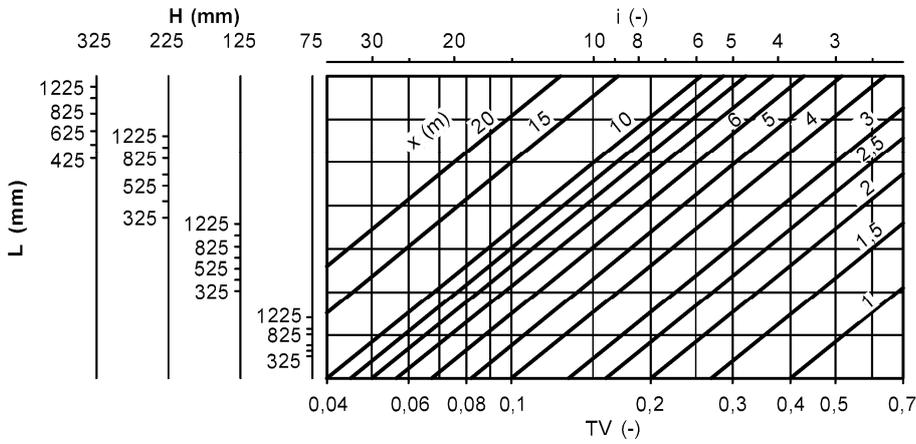


**Maximum penetration**

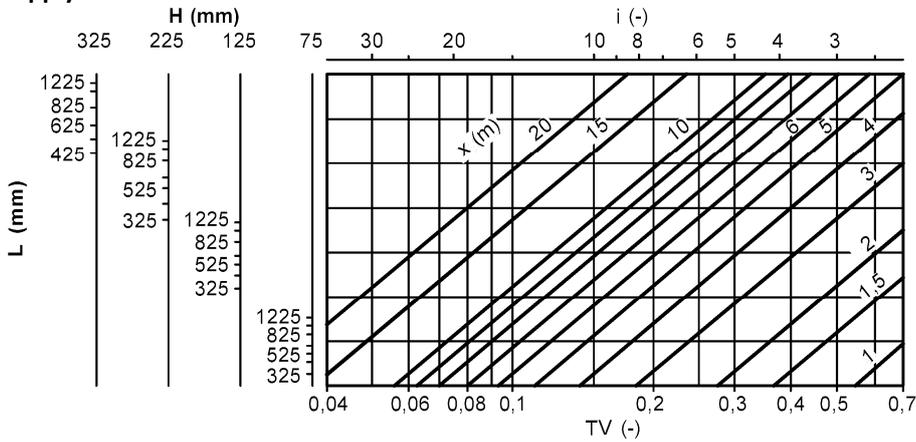
In heating mode



**Induction and temperature ratio**  
**Supply air without coanda effect**

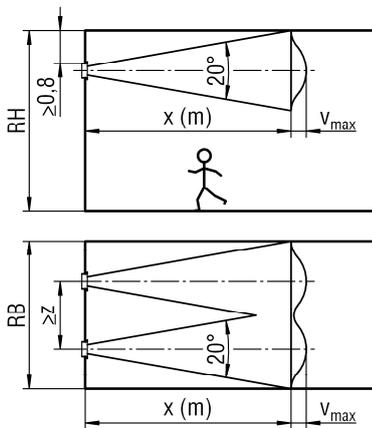


**Supply air with coanda effect**



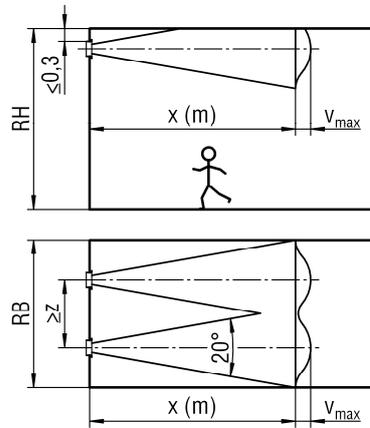
**Minimum distances**

**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**

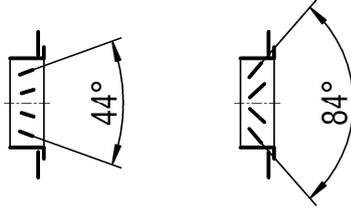


For the diagrams to be correct, the distance z between two grilles must be  $\geq x (m) \times 0.2$ .

### 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):

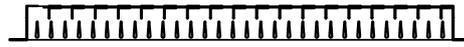
$i = 7.5$

temperature ratio (page 17):

$TV = 0.2$

### Blade position

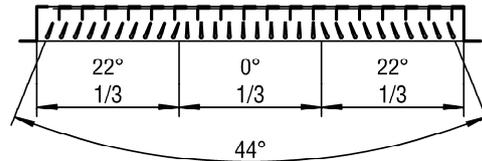
Blade position straight (-L000)



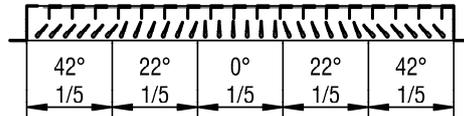
Blade position opposite to one another (-LGEG)



Blade position 44° diverging (-L044)

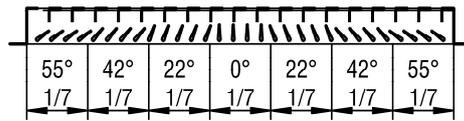


Blade position 84° diverging (-L084)



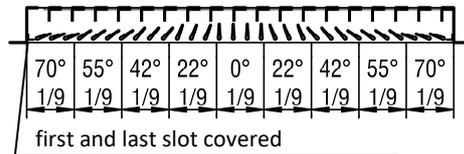
Blade position 110° diverging (-L110)

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



Blade position 140° diverging (-L140)

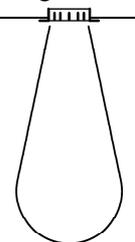
(only for AL-11 / AL-12 / AL-15 / AL-16)



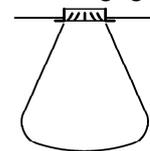
The angle of propagation of the air jet and thus the length of throw can be affected by adjusting the vertical air deflection blades.

Blade position:

straight



diverging



## LEGEND

$V_{ZU}$	(m <sup>3</sup> /h) [l/s]	= Supply air volume
$V_{AB}$	(m <sup>3</sup> /h) [l/s]	= Return air volume
$V_x$	(m <sup>3</sup> /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 <sup>2</sup> )	= face area
x	(m)	= horizontal throw
y	(m)	= vertical throw
$x_{kr}$	(m)	= critical throw
$\rho$	(kg/m <sup>3</sup> )	= Density
$\Delta p_t$	(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
$\Delta T_O$	(K)	= Temperature difference between supply air and room temperature ( $\Delta T_O = t_{ZU} - t_R$ )
$\Delta T_{OH}$	(K)	= Temperature difference between air supply and ambient temperature in heating mode ( $\Delta T_{OH} = t_{ZU} - t_{RH}$ )
$\Delta T_x$	(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) × 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
<b>Example</b>				
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
<b>Example</b>						
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 galvanised 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 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 (-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).