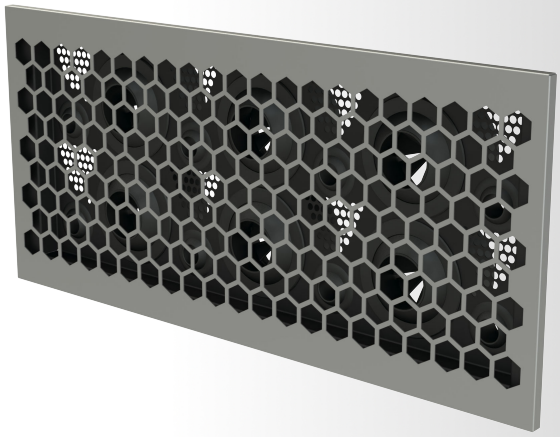
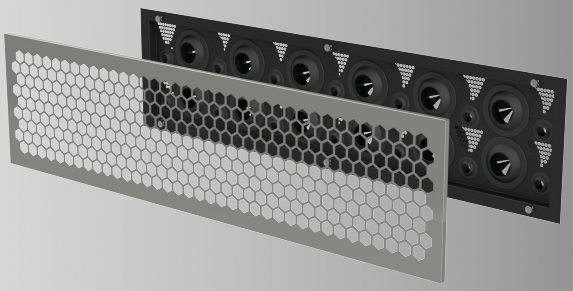




LWD

Linear wall-mounted swirl air diffuser

PERFORMANCE DATA

- LWD-Q-Z-…625-125… at 35 dB(A) 125 m³/h (35 l/s)
- LWD-Q-Z-…1025-125-… at 35 dB(A) 250 m³/h (69 l/s)
- LWD-Q-Z-…-625-225-… at 35 dB(A) 250 m³/h (69 l/s)
- LWD-Q-Z-…-1025-225-… at 35 dB(A) 480 m³/h (133 l/s)
- LWD-Q-A-…625-125… at 35 dB(A) 400 m³/h (111 l/s)
- LWD-Q-A-…1025-125-… at 35 dB(A) 700 m³/h (194 l/s)
- LWD-Q-A-…-625-225-… at 35 dB(A) 700 m³/h (194 l/s)
- LWD-Q-A-…-1025-225-… at 35 dB(A) 1250 m³/h (347 l/s)

SPECIAL FEATURES

- Mounted directly into ducts or with plenum box
- Supply air ΔT to -8 K

SCHAKO KG
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D-78600 Kolbingen

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info@schako.de
schako.com

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FUNCTION AND USE

The SCHAKO linear wall-mounted swirl air diffuser LWD for diverse requirements was developed for use in supply and return air systems.

The advanced and well-designed construction of the linear wall-mounted swirl air diffuser LWD enables displacement and mixed air flow at low sound power levels. A major advantage of the linear wall-mounted swirl air diffuser LWD is that the entire air jet is split into a large number of small individual jets, thus reducing the supply air temperature and air jet velocity very quickly. This means that on the one hand the supply air does not drop into the occupied area in cooling mode and, on the other hand the air does not rise too fast towards the ceiling in heating mode.

The LWD wall-mounted swirl air diffuser with individually and manually adjustable nozzles enables individually adjustable air jets (45° swivelling range), depending on the requirement. Manual adjustment of the individual nozzles from the front is easy after removing the cover grille.

The linear wall-mounted swirl air diffuser LWD is suitable for installation directly into ducts. 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.

All models can be used in 100% to 40% VAV systems.

Models

LWD-Q-...	For installation in walls/ ducts/ plenum box, individually adjustable nozzles
LWD-...-6-...	Hexagon design (hexagon design)
LWD-...-125-...	one row of nozzles
LWD-...-225-...	two row of nozzles
LWD-...-N-...	single design
LWD-...-Z-...	supply air
LWD-...-A-...	return air

Mounting

- Screw mounting (-SM)
  - Screws must be provided on-site

Processing

Faceplate

- Sheet steel (-SB), painted:
  - in colour RAL 9010 (-9010, white, standard)
  - a different RAL colour, freely selectable (-xxxx) (always with 4 digits)

Nozzle plate

- Sheet steel (-SB), painted:
  - in colour RAL 9005 (-9005, black, standard)
  - a different RAL colour, freely selectable (-xxxx) (always with 4 digits)
  - perforated plate for return air

Nozzles

- Plastic:
  - similar to colour RAL 9010 (white, standard) (-DW)
  - similar to colour RAL 9005 (black) (-DS)
  - similar to colour RAL 9006 (white aluminium) (-DA)
  - without nozzles (-00) (standard for return air)

Accessories

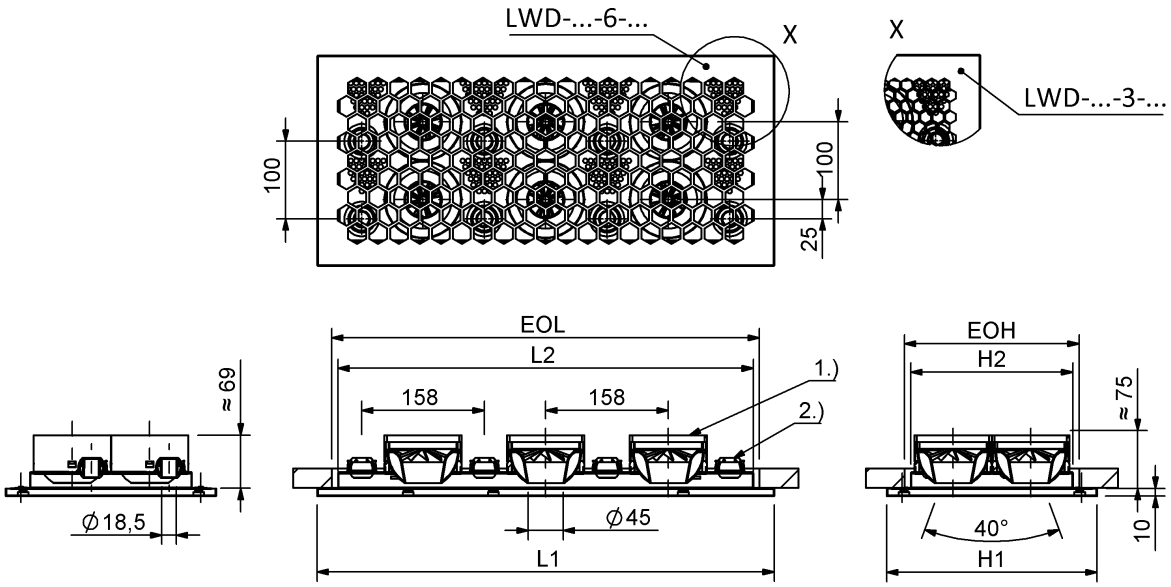
Plenum box (-AK-...)

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

- matching air diffuser LWD-...-Z-... (AK-58-...)
- matching air diffuser LWD-...-A-... (AK-80-...)
- Length:
  - 625 mm (-00625)
  - 1025 mm (-01025)
- Height:
  - 125 mm (-125)
  - 225 mm (-225)
- Single / band design:
  - Single design (-N)
- Mounting:
  - screw mounting (-SM) (screws must be provided on site)
- Damper:
  - Without damper (-DK0) (standard)
  - with damper (-DK2), made of galvanised sheet steel, in plenum box housing, with cable-operated adjustment, for easy air volume regulation
- Rubber lip seal:
  - without rubber lip seal (-GD0) (standard)
  - With rubber lip seal (-GD1) on the connection spigot
- Insulation:
  - without insulation (-I0) (standard)
  - With internal insulation (-Ii), thermal insulation inside the plenum box
  - with external insulation (-Ia), thermal insulation on the outside of the plenum box
- Height of box:
  - Standard height of box (-KHS)
  - height of box in mm, freely selectable (-xxx) (minimum height [KHS] for spigot position S1 and standard box neck (75 mm) = spigot diameter D + 172 mm, minimum height [KHS] for spigot length S0 min. 200 mm) (always 3 digits)
- Spigot diameter:
  - Standard spigot diameter (-SDS)
  - spigot diameter (øD) in mm, freely selectable (-xxx, always with 3 digits)
- Spigot position:
  - Spigot from above (-S0)
  - Lateral spigot on the plenum box (-S1) (standard)

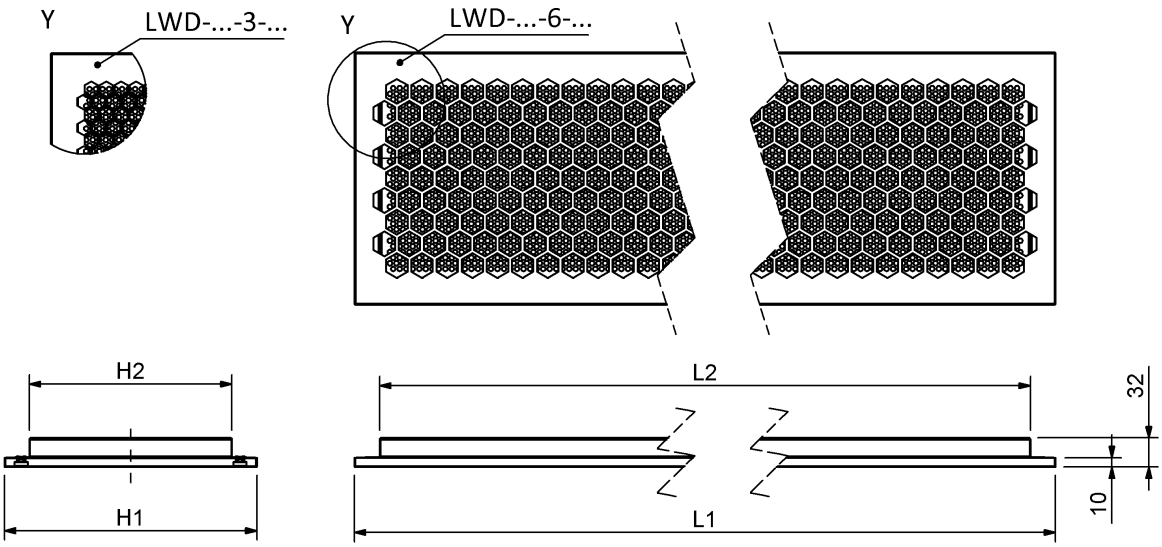
DIMENSIONS

LWD-Q-Z-...-6-...-N-...



1.) Large nozzle 2.) Small nozzle

LWD-Q-A-...-6-...-N-



Available sizes of LWD-Q-6-...

L	L1	L2
625	589	535
1025	1063	1009

H	H1	H2
125	163	109
225	271	215

All combined lengths and heights available.

Special dimensions not available!

Construction subject to change. No return possible.

Number of nozzles LWD-Q-...

		L	
		625	**1025**
H	**125**	3 large nozzles 4 small nozzles	6 large nozzles 7 small nozzles
	225	6 large nozzles 8 small nozzles	12 large nozzles 14 small nozzles

EOL = installation opening in the length section (L2 + 16 mm)

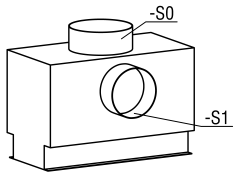
EOH = installation opening in the height section (H)

Screw mounting (-SM), see Page 8.

DIMENSIONS OF ACCESSORIES

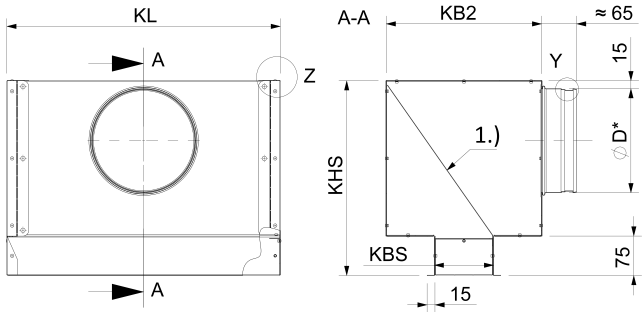
Plenum box (-AK-58-.../-AK-80-...)

Spigot position



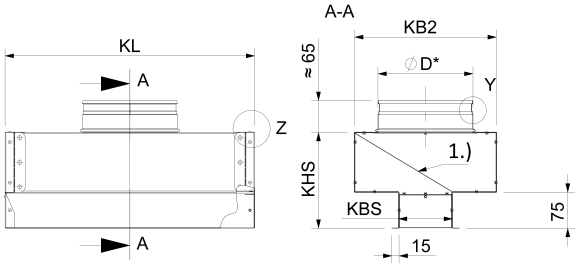
- Lateral spigot on the plenum box (-S1, standard)
- Spigot from above (-S0)

with lateral spigot on the plenum box (-S1, standard)



* external

With spigot from above (-S0)



* external

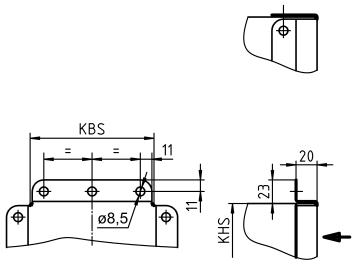
1.) Air diffuser plate (only for -AK-58-...)

Available sizes -AK-58-... / -AK-80-...

H	L	KL	KHS (-S1)	KHS (-S0)	KBS	KB2	øD (-S1 / -S0)
125	**625**	546	370	200	118	297	1xø198
	1025	1020	370		118	297	2xø198
225	**625**	546	420		227	347	1xø248
	1025	1020	420		227	347	2xø248

Minimum height of KHS for spigot position -S1 and for standard box neck (75 mm):
KHS min. = øD +172 mm
Minimum height of KHS for spigot position -S0:
KHS min. 200 mm
Minimum width of KB2 for spigot position -S0:
KB2 min. = øD + 30 mm
Minimum difference between KBS and KB2 = 40 mm
The dimension KBS cannot be changed.
Installation opening with plenum box
EOL = installation opening in the length section (L2 + 16 mm)
EOH = installation opening in the height section (KBS + 7)

Plenum box suspension

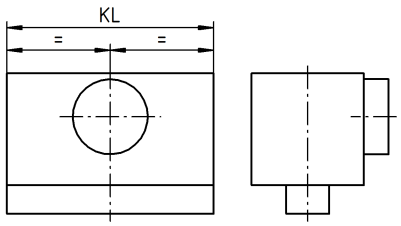


Detail Z
State of delivery with fitted mounting brackets
Detail Z
with bent fixing lugs

Number of spigots

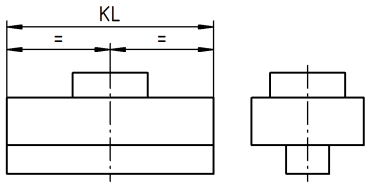
Lateral spigot (-S1) (standard)

with 1 spigot from front



Spigot from above (-S0)

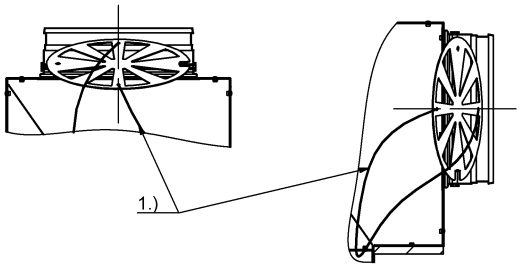
with 1 spigot from above



Damper (-DK0/-DK2), for AK-...

- Without damper (-DK0) (standard)
- with damper and cable-operated adjustment (-DK2)

Spigot from above -S0 lateral spigot on the box -S1

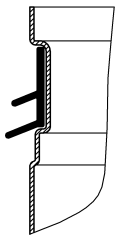


1.) Cable-operated adjustment

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

- without rubber lip seal (-GD0) (standard)
- With rubber lip seal (-GD1) on the connection spigot

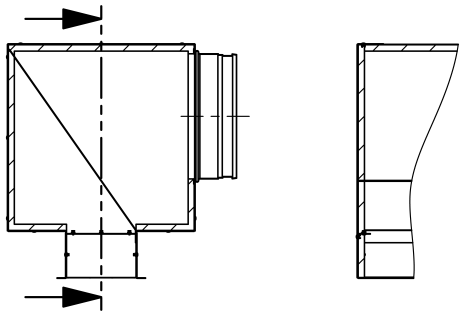
Detail Y



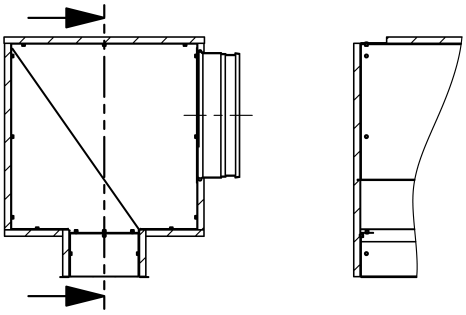
Insulation (-I0 / -Ii / -Ia), for AK-...

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

Internal insulation (-Ii)



External insulation (-Ia)

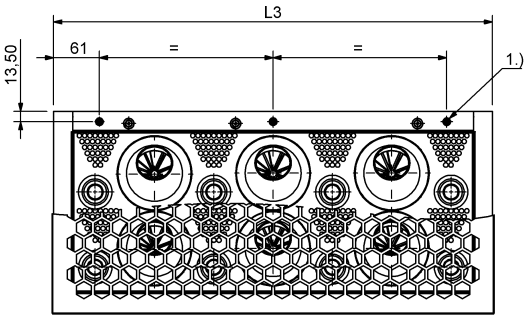


MOUNTING OPTIONS

Screw mounting (-SM)

for installation in walls/ducts/plenum box

LWD-Q-...-6-...-N-...



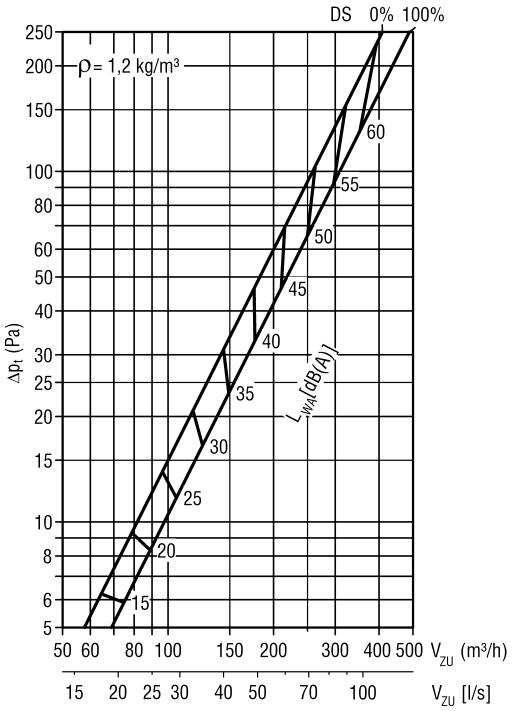
1.) Indentation for slotted shallow-raised countersunk-head tapping screw DIN ISO 7051 pitch 3.9 (on site)

L	L3
625	584,5
1025	1058,5

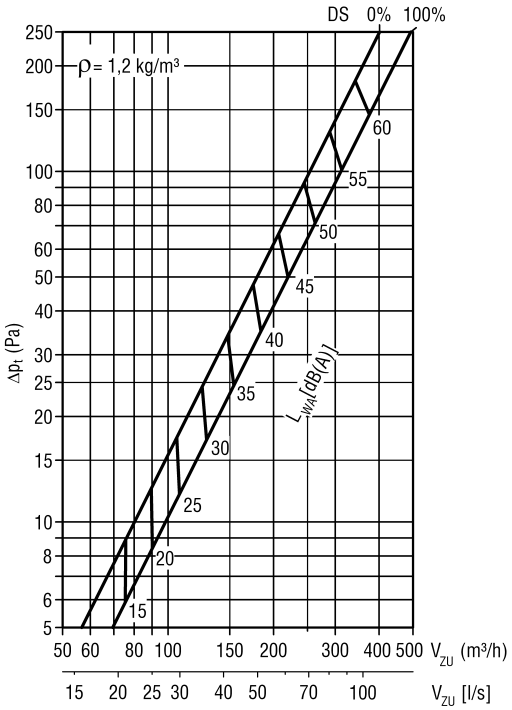
TECHNICAL DATA

Pressure loss and noise level

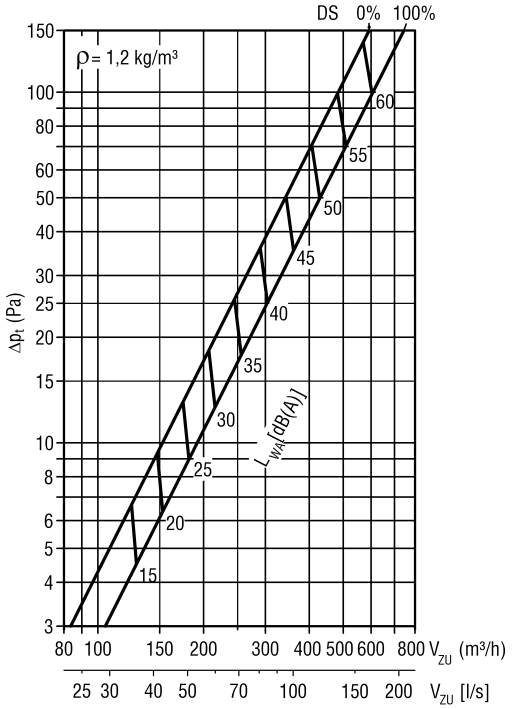
LWD-Q-Z-6-...-00625-125-...-AK-58-...-S1



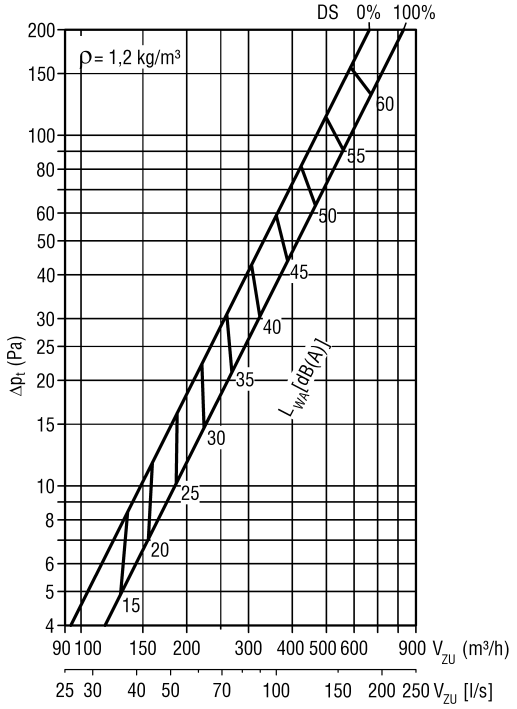
LWD-Q-Z-6-...-00625-125-...-AK-58-...-S0



LWD-Q-Z-6-...-00625-225-...-AK-58-...-S1



LWD-Q-Z-6-...-00625-225-...-AK-58-...-S0

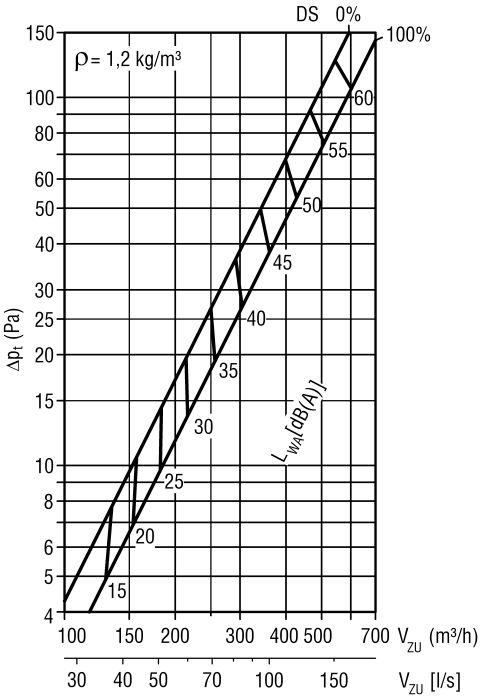


Damper position (DS):

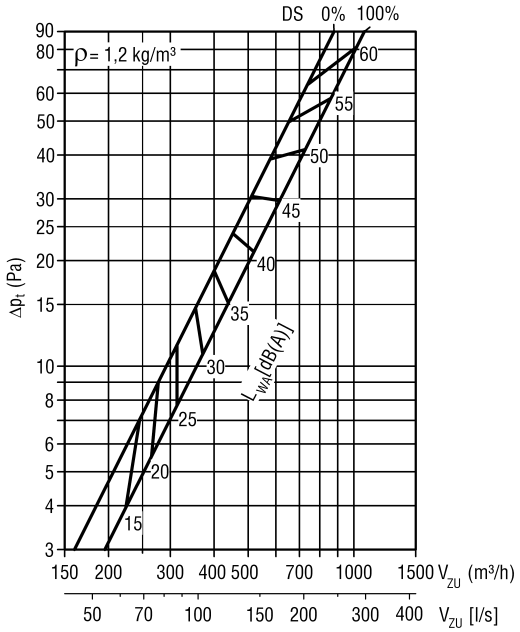
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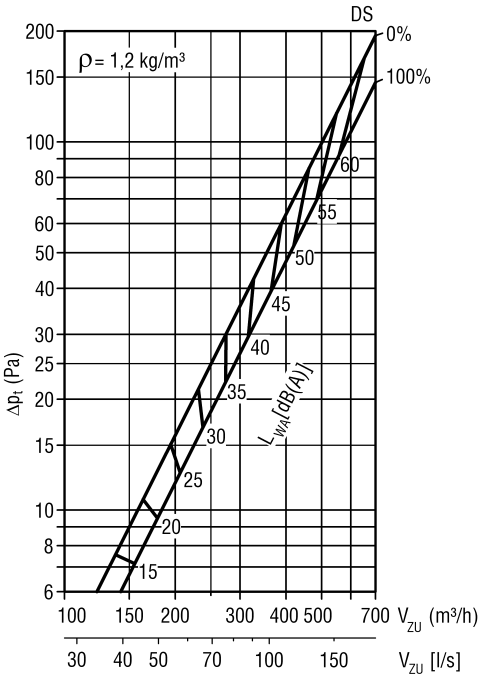
LWD-Q-Z-6-...-01025-125-...-AK-58-...-S1



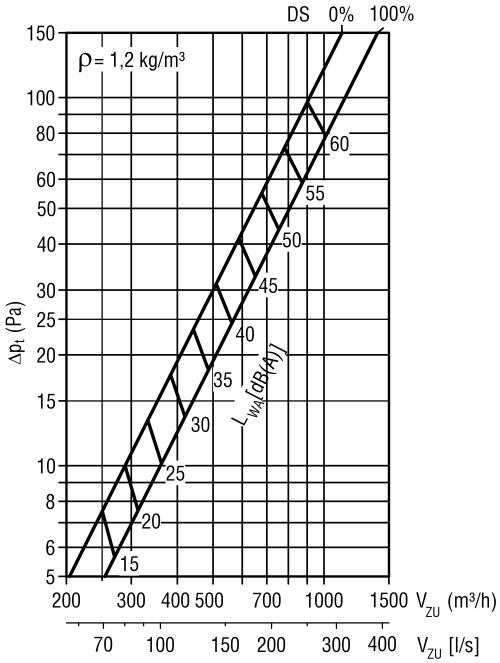
LWD-Q-Z-6-...-01025-225-...-AK-58-...-S1



LWD-Q-Z-6-...-01025-125-...-AK-58-...-S0



LWD-Q-Z-6-...-01025-225-...-AK-58-...-S0

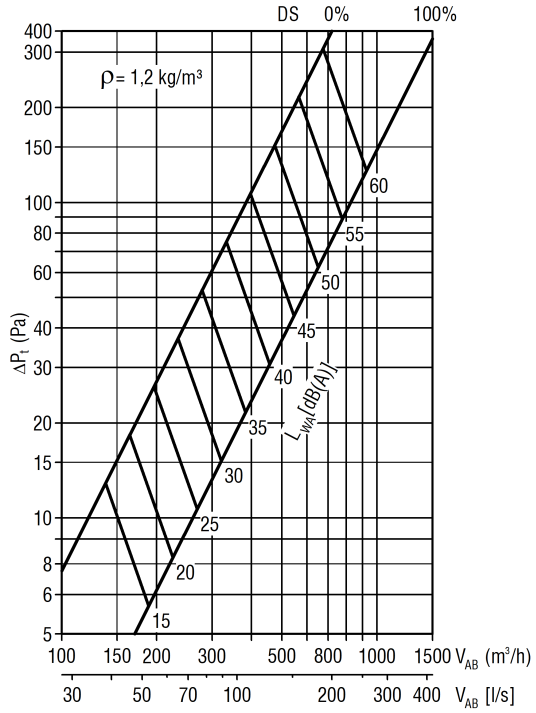


Damper position (DS):

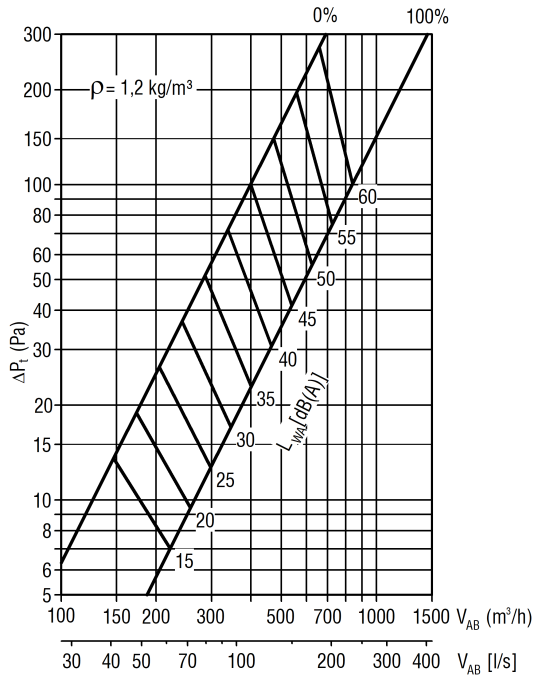
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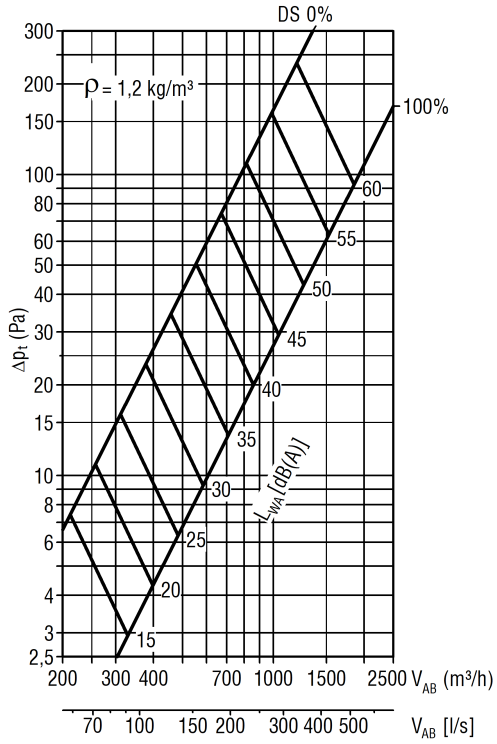
LWD-Q-A-6-...-00625-125-...-AK-80-...-S1



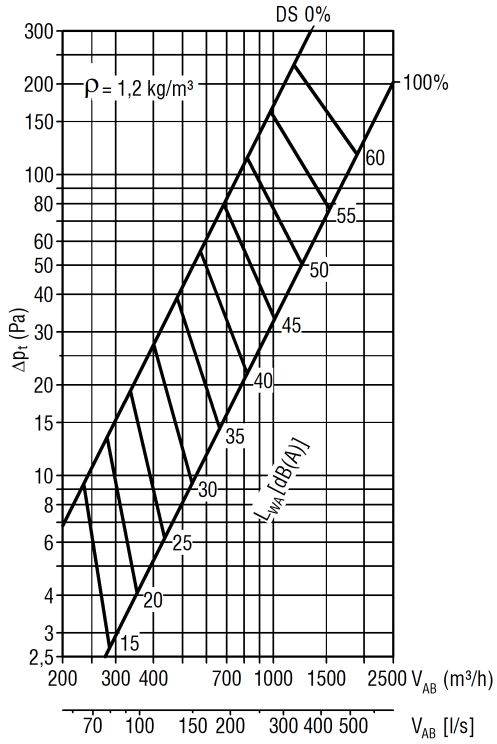
LWD-Q-A-6-...-00625-125-...-AK-80-...-S0



LWD-Q-A-6-...-00625-225-...-AK-80-...-S1



LWD-Q-A-6-...-00625-225-...-AK-80-...-S0

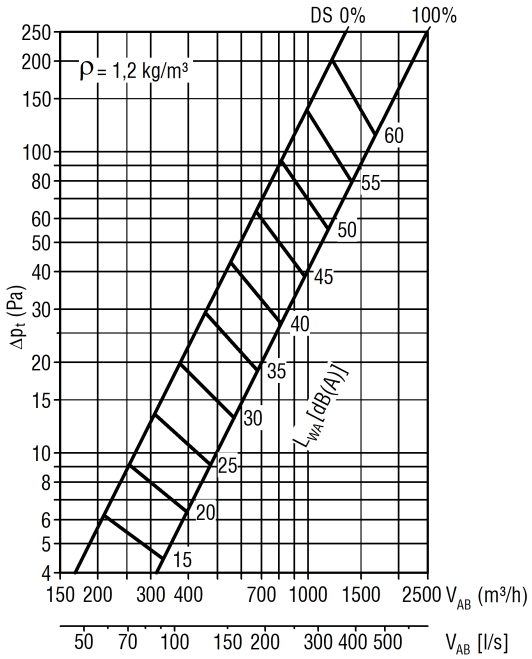


Damper position (DS):

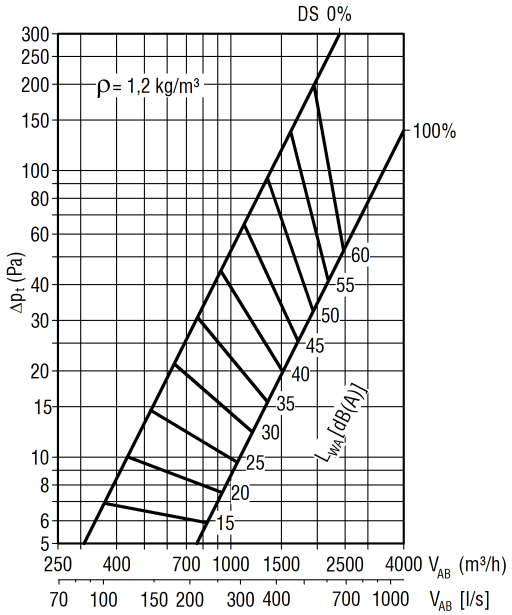
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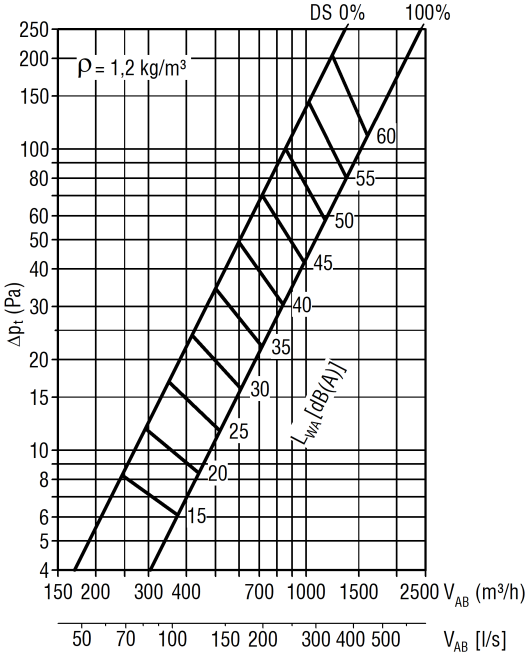
LWD-Q-A-6-...-01025-125-...-AK-80-...-S1



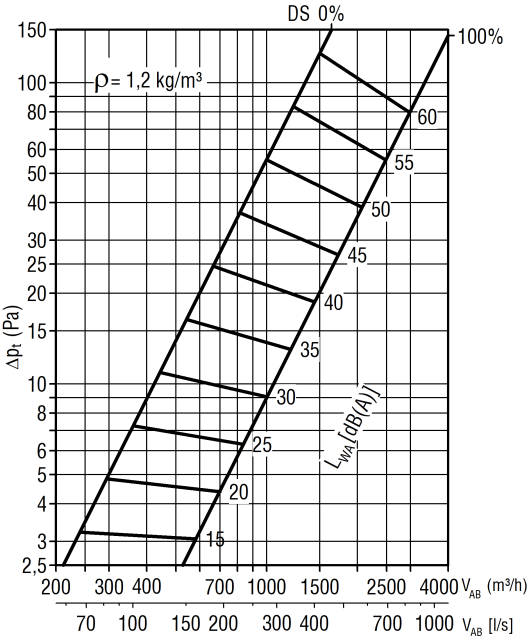
LWD-Q-A-6-...-01025-225-...-AK-80-...-S1



LWD-Q-A-6-...-01025-125-...-AK-80-...-S0



LWD-Q-A-6-...-01025-225-...-AK-80-...-S0



Damper position (DS):

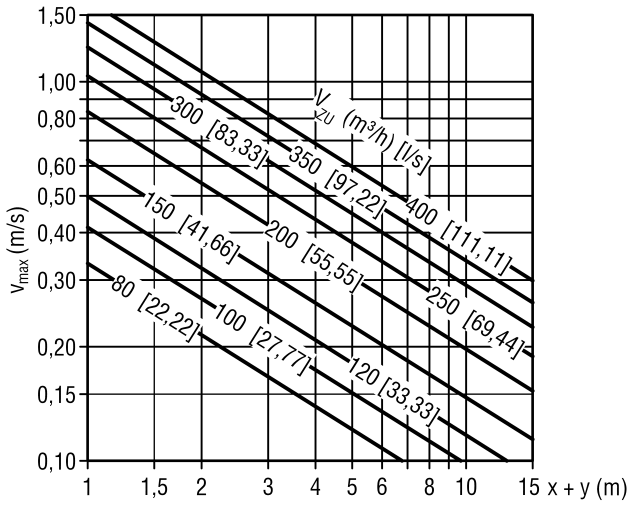
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0% = CLOSED

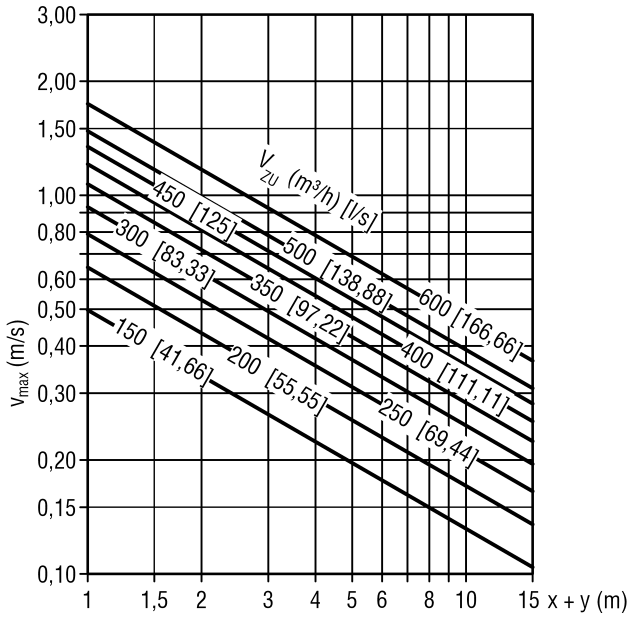
Maximum end velocity of jet (isotherm)

with coanda effect, straight throw slightly upwards

LWD-Q-Z-6-...-00625-125-...



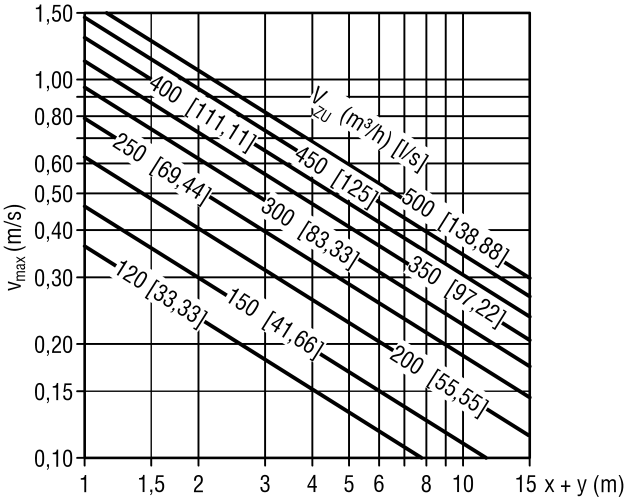
LWD-Q-Z-6-...-00625-225-...



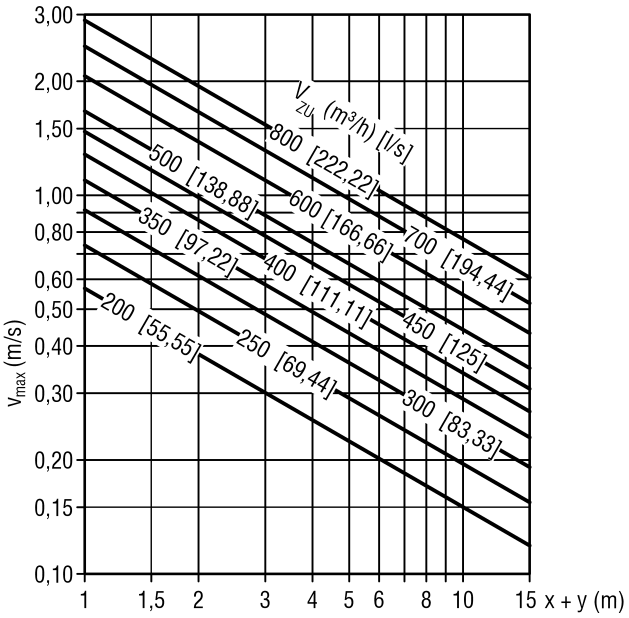
Correction factor for diverging air throw, upward throw

H	L	KF (-)
125	625	v_{max} (m/s) x 0.85
	1025	v_{max} (m/s) x 0.87
225	625	v_{max} (m/s) x 0.58
	1025	v_{max} (m/s) x 0.63

LWD-Q-Z-6-...-01025-125-...

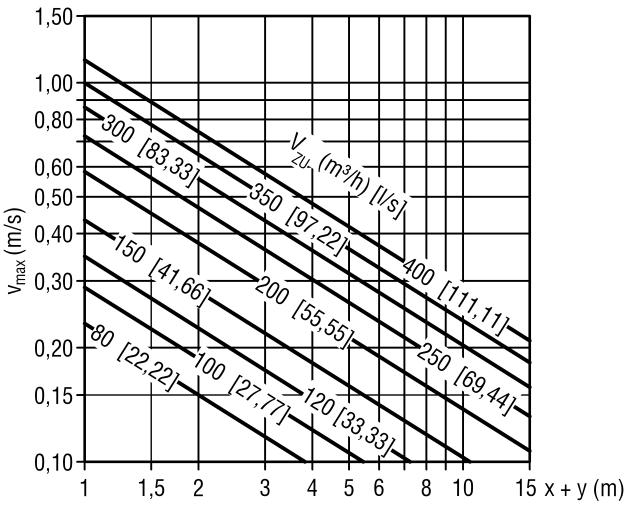


LWD-Q-Z-6-...-01025-225-...

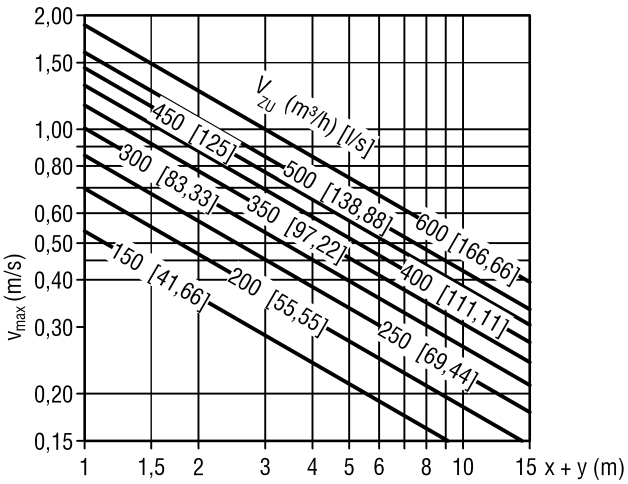


without coanda effect, straight throw slightly upwards

LWD-Q-Z-6-...-00625-125-...



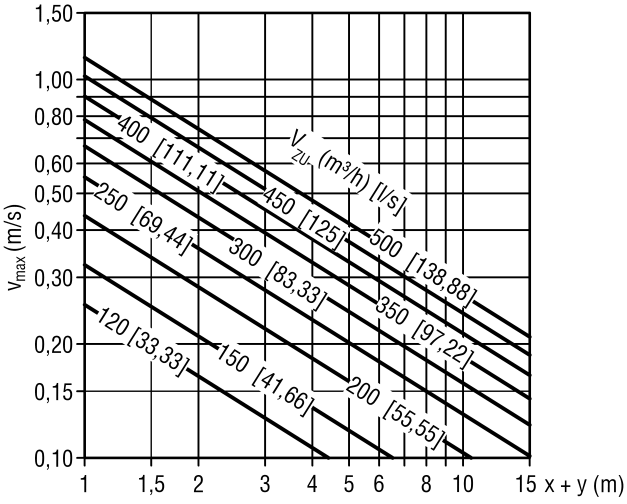
LWD-Q-Z-6-...-00625-225-...



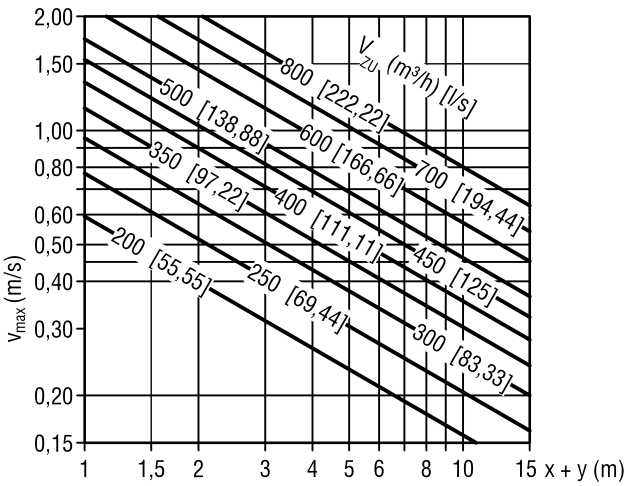
Correction factor for diverging air throw, upward throw

H	L	KF (-)
125	625	v_{max} (m/s) x 0.87
	1025	
225	625	v_{max} (m/s) x 0.63
	1025	

LWD-Q-Z-6-...-01025-125-...



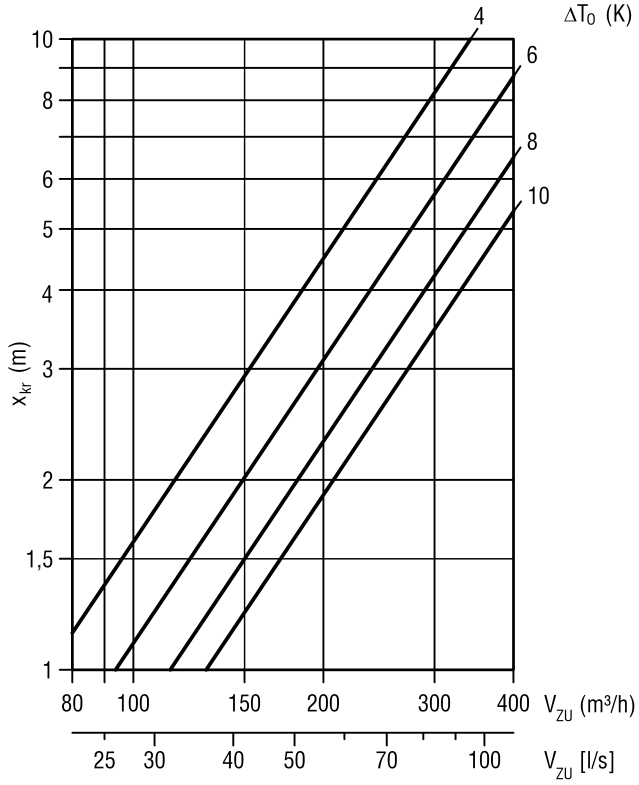
LWD-Q-Z-6-...-01025-225-...



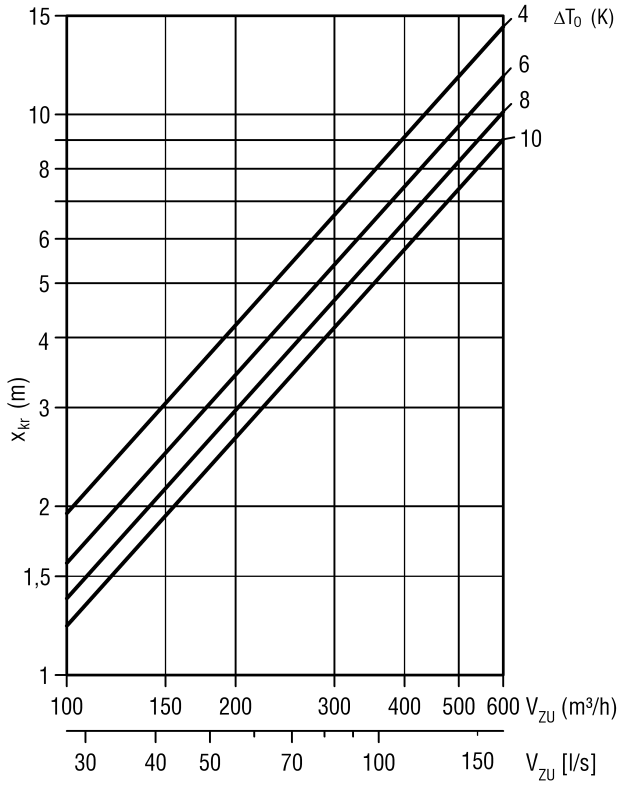
critical throw

with coanda effect, straight throw slightly upwards

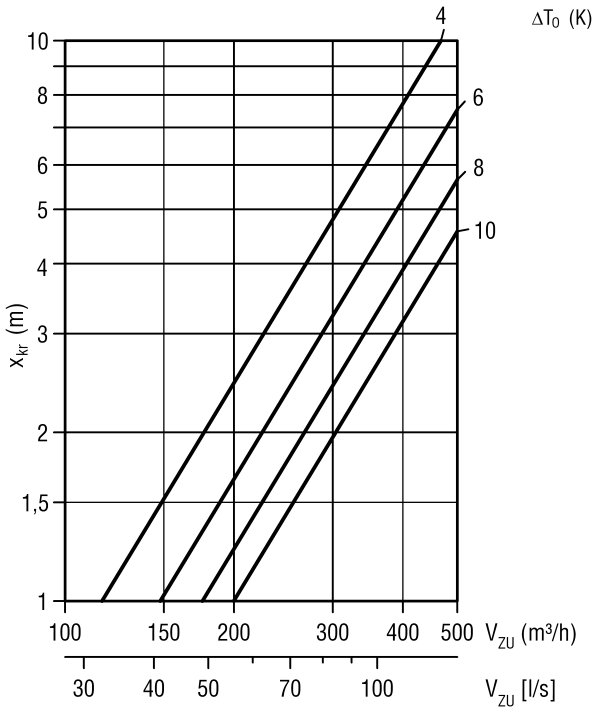
LWD-Q-Z-6-...-00625-125-...



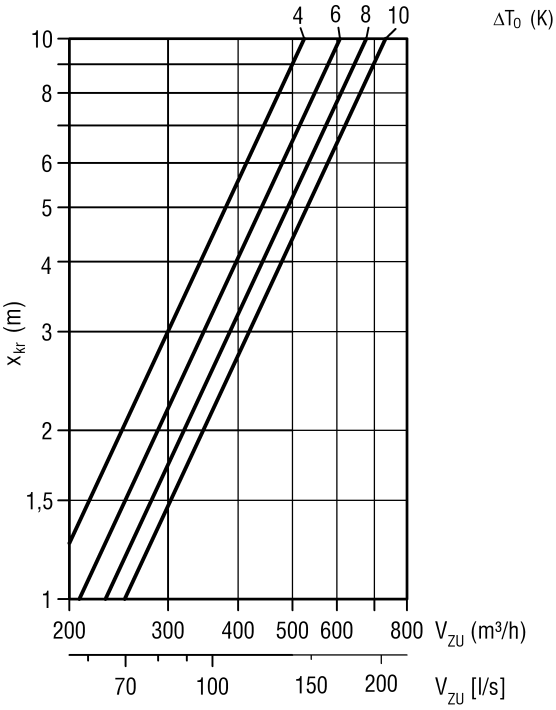
LWD-Q-Z-6-...-00625-225-...



LWD-Q-Z-6-...-001025-125-...



LWD-Q-Z-6-...-01025-225-...



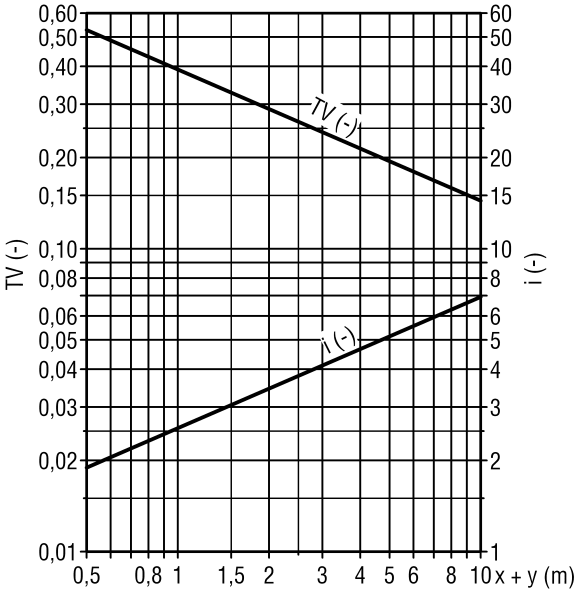
Correction factor for diverging air throw, upward throw

H	L	KF (-)
125	***625***	X_{kr} (m) x 0.62
	1025	X_{kr} (m) x 0.85
225	**625**	X_{kr} (m) x 0.70
	1025	X_{kr} (m) x 0.77

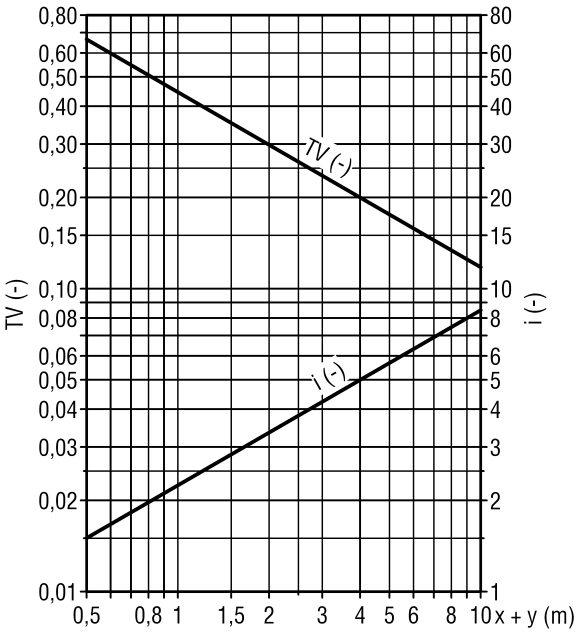
Induction ratios and temperature ratios

with coanda effect, straight throw slightly upwards

LWD-Q-Z-6-...-00625-125-...



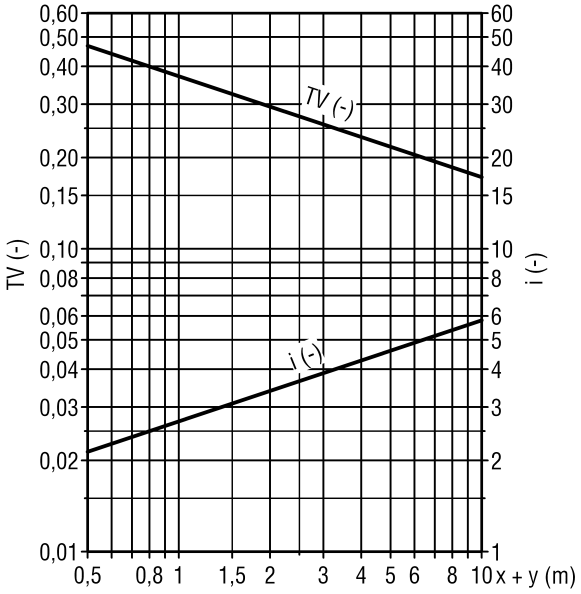
LWD-Q-Z-6-...-00625-225-...



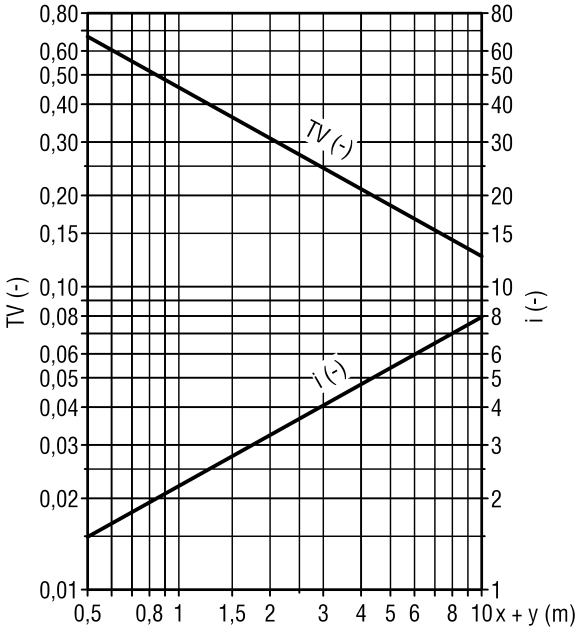
Correction factor for diverging air throw, upward throw

H	L	KF (-)
125	625	TV (-) x 0.62
	1025	TV (-) x 0.65
225	625	TV (-) x 0.69
	1025	TV (-) x 0.58

LWD-Q-Z-6-...-001025-125-...



LWD-Q-Z-6-...-01025-225-...

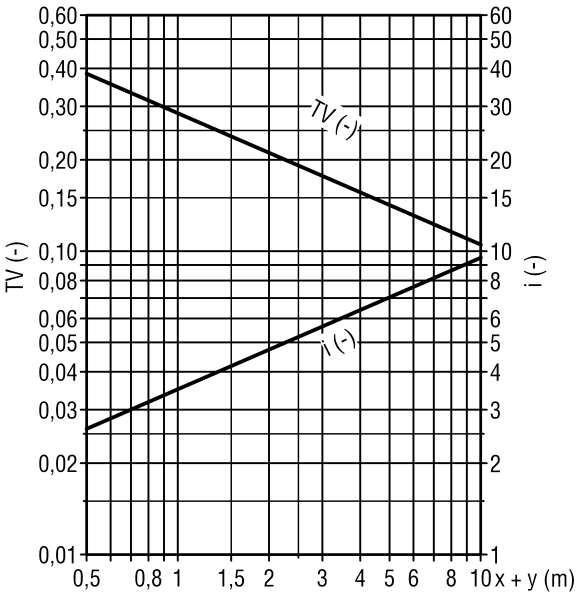


Correction factor for diverging air throw, upward throw

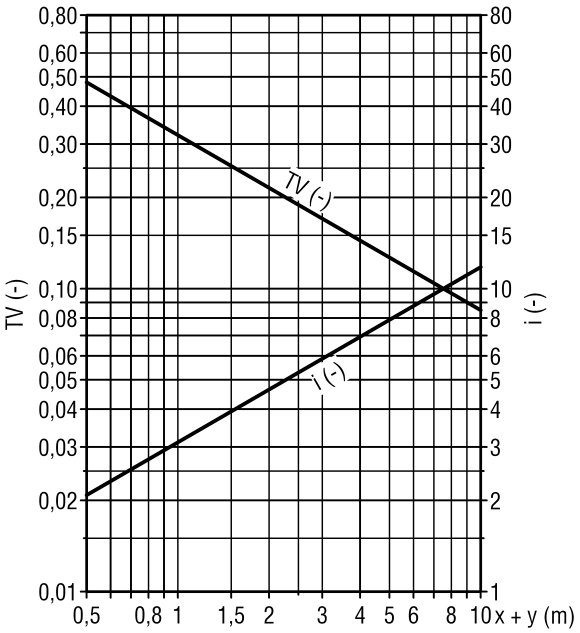
H	L	KF (-)
125	625	i (-) x 1.61
	1025	i (-) x 1.55
225	625	i (-) x 1.45
	1025	i (-) x 1.71

without coanda effect, straight throw slightly upwards

LWD-Q-Z-6-...-00625-125-...



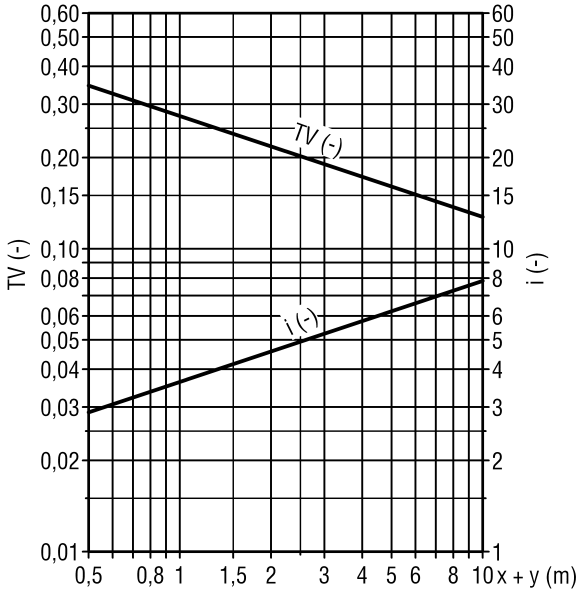
LWD-Q-Z-6-...-00625-225-...



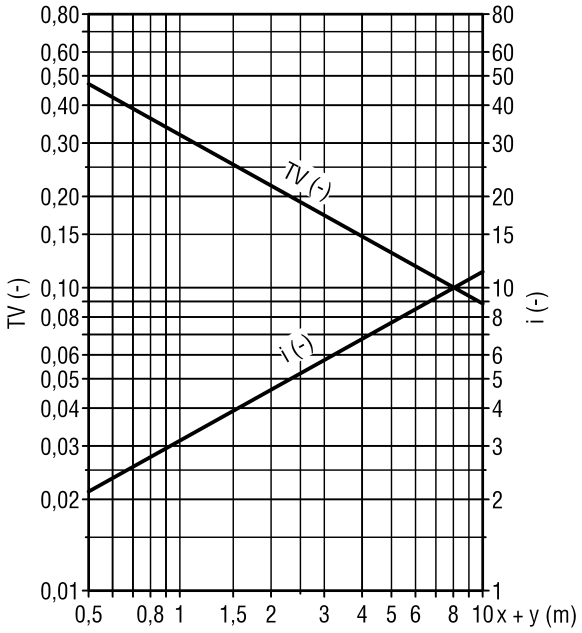
Correction factor for diverging air throw, upward throw

H	L	KF (-)
125	625	TV (-) x 0.62
	1025	TV (-) x 0.65
225	625	TV (-) x 0.69
	1025	TV (-) x 0.58

LWD-Q-Z-6-...-001025-125-...



LWD-Q-Z-6-...-01025-225-...

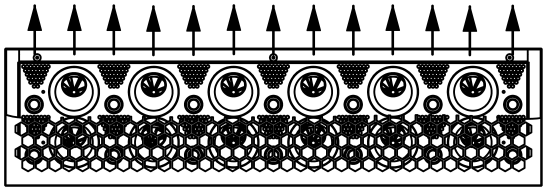


Correction factor for diverging air throw, upward throw

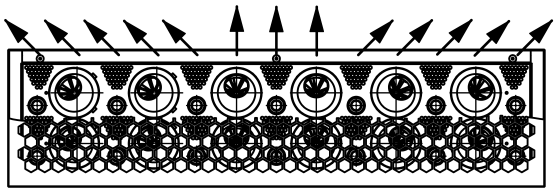
H	L	KF (-)
125	625	i (-) x 1.61
	1025	i (-) x 1.55
225	625	i (-) x 1.45
	1025	i (-) x 1.71

Air throw

straight throw slightly upwards



diverging throw upwards



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) =Maximum end velocity of jet
x+y (m) =Horizontal + vertical throw
x_{kr} (m) =Critical throw
t_{ZU} (°C) =Supply air temperature
t_R (°C) =Room temperature
Δp_t (Pa) =Pressure loss
A_{stirn}(m^2) =Face area
KF (-) =Correction factor
L_{WA} [dB(A)] =A-weighted sound power level
ρ (kg/m^3) =Density
i (-) =Induction ratio ($i = V_X / V_{ZU}$)
TV (-) =Temperature ratio ($TV = \Delta T_X / \Delta T_O$)
L (mm) =Length
H (mm) =Height
ΔT_0 (K) =Temperature difference between supply air temperature and room temperature ($\Delta T_0 = t_{ZU} - t_R$)
x (m) =Horizontal jet path
DS (-) =Damper position

ORDER CODE LWD

01	02	03	04	05	06	07
Type	Model	Air throw	Faceplate	Length	Height	Single / band design
Example						
LWD	-Q	-Z	-6	-01025	-125	-N

08	09	10	11	12	13
Material	Faceplate coating	Nozzle plate paint	Nozzle colour	Mounting	Hit-and-miss damper
-SB	-9010	-9005	-DS	-SM	-SN

All fields must be filled when ordering.

Sample

LWD-Q-Z-6-01025-125-N-SB-9010-9005-DS-SM-SN

Linear wall-mounted swirl air diffuser LWD | for installation in walls/ducts/plenum box | supply air | hexagonal design | grille length: 1,025 mm | one row of nozzles | single design | sheet steel | painted in RAL colour 9010 (white) | painted in RAL colour 9005 (black) | plastic, similar to RAL colour 9005 (black) | with screw mounting | without hit-and-miss damper

Order details

01 - Type

LWD = LWD linear wall-mounted swirl air diffuser

02 - Model

Q = for installation in walls/ducts/plenum box

03 - Air throw

Z = Supply air
A = Return air

04 - Faceplate

6 = hexagonal design

05 - Length

00625 = Grille length 625 mm
01025 = Grille length 1025 mm

06 - Height

125 = nozzles 1 row
225 = nozzles 2 rows

07 - Single / band design

N = Single design

08 - Material

SB = Sheet steel

09 - Faceplate coating

9010 = painted in colour RAL 9010 (white, standard)
xxxx = painted to a different RAL colour, freely selectable (always with 4 digits)

10 - Nozzle plate paint

9010 = painted in colour RAL 9010 (white, standard)
xxxx = painted to a different RAL colour, freely selectable (always with 4 digits)

11 - Nozzle colour

DW = plastic, similar to colour RAL 9010 (white) (standard)
DS = plastic, similar to colour RAL 9005 (black)
DA = plastic, similar to colour RAL 9006 (white aluminium)
00 = without nozzles (standard for return air)

12 - Mounting

SM = Screw mounting

13 - Hit-and-miss damper

SN = Without hit-and-miss damper (standard)

ORDER CODE AK

01	02	03	04	05	06	07	08
Type	Air diffuser	Length	Height	Single / band design	Mounting	Material	Damper
Example							
AK	-58	-00625	-125	-N	-SM	-SV	-DK2

09	10	11	12	13
Rubber lip seal	Insulation	Height of box	Spigot diameter	Spigot position
-GD1	-I0	-KHS	-SDS	-S0

All fields must be filled when ordering.

Sample

AK-58-00625-125-N-SM-SV-DK2-GD1-I0-KHS-SDS-S0

Plenum box, rectangular design | for wall-mounted swirl air diffuser LWD-...-Z-... I grille length 625 mm I grille height 125 mm I single design I screw mounting I galvanised sheet steel I with damper and cable-operated adjustment I with rubber lip seal I without insulation I standard height of box I standard spigot diameter I spigot from above

Order details

01 - Type

AK = Plenum box, rectangular design

02 - Air diffuser

58 = for wall-mounted swirl air diffuser LWD-…-Z-…
80 = for wall-mounted swirl air diffuser LWD-…-A-…

03 - Length

00625 = Grille length 625 mm
01025 = Grille length 1025 mm

04 - Height

125 = Grille height 125 mm
225 = Grille height 225 mm

05 - Single/band design

N = Single design

06 - Mounting

SM = Screw mounting (screws must be provided on site)

07 - Material

SV = Galvanised sheet steel

08 - Damper

DK0 = Without damper (standard)
DK2 = with damper and cable-operated adjustment

09 - Rubber lip seal

GD0 = without rubber lip seal (standard)
GD1 = with rubber lip seal

10 - Insulation

I0 = Without insulation (standard)
Ii = with internal insulation
Ia = With external insulation

11 - Height of box

KHS = Height of plenum box standard
xxx = height of box in mm, freely selectable (always 3 digits) (minimum height [KHS] for spigot position S1 and for standard box neck (75 mm) = spigot diameter øD + 172 mm, minimum height [KHS] for spigot position S0 is min. 200 mm)

12 – Spigot diameter

SDS = Spigot diameter standard
xxx = spigot diameter (øD) in mm, freely selectable (always with 3 digits)

13 - Spigot position

S0 = Spigot from above
S1 = Lateral spigot on the box (standard)

SPECIFICATION TEXT

The SCHAKO linear wall-mounted swirl air diffuser LWD was developed for use in supply and return air systems. It is especially suitable for the air conditioning of rooms with high comfort requirements.

The advanced and well-designed construction of the linear wall-mounted swirl air diffuser LWD enables displacement and mixed air flow at low sound power levels. A major advantage of the linear wall-mounted swirl air diffuser LWD is that the entire air jet is split into a large number of small individual jets, thus reducing the supply air temperature and air jet velocity very quickly. This means that on the one hand the supply air does not drop into the occupied area in cooling mode and, on the other hand the air does not rise too fast towards the ceiling in heating mode.

The LWD wall-mounted swirl air diffuser with individually and manually adjustable nozzles enables individually adjustable air jets (45° swivelling range), depending on the requirement. Manual adjustment of the individual nozzles from the front is easy after removing the cover grille.

The linear wall-mounted swirl air diffuser LWD is suitable for installation directly into ducts. 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.

High flexibility through a wide range of installation options. Installation in walls, plenum boxes and ducts. Cooling and heating modes are possible. Suitable for use in 100% to 40% VAV systems. The nozzle mounting plate is connected to the plenum box or air duct via screw mounting.

Product: SCHAKO **type LWD-...**

Model:

- for installation in walls/ducts/plenum box **(-Q)**

Air throw:

- supply air (**-Z**)
- return air (**-A**)

Faceplate:

- hexagonal design (**-6**)

Length:

- 625 mm (**-00625**)
- 1025 mm (**-01025**)

Height:

- Nozzles 1-row (**-115**)
- Nozzles 2-rows (**-215**)

Single / band design:

- Single design (**-N**)

Material / paint:

- Sheet steel (**-SB**):

Faceplate coating:

- painted in colour RAL 9010 (white, standard) (**-9010**)
- painted a different RAL colour, freely selectable (**-xxxx**) (always with 4 digits)

Nozzle plate paint:

- painted in colour RAL 9005 (black, standard) (**-9005**)
- painted a different RAL colour, freely selectable (**-xxxx**) (always with 4 digits)
- perforated plate for return air

Nozzle colour:

- Plastic:
  - similar to colour RAL 9010 (white) (standard) (**-DW**)
  - similar to colour RAL 9005 (black) (**-DS**)
  - similar to colour RAL 9006 (white aluminium) (**-DA**)
  - without nozzles (**-00**) (standard for return air)

Mounting:

- Screw mounting (**-SM**)
  - Screws must be provided on site.

Accessories:

- plenum box, in rectangular design, made of galvanised sheet steel (-SV), housing with round connection spigot and mounting brackets.
  - matching air diffuser LWD-...-Z-... (AK-58-...)
  - matching air diffuser LWD-...-A-... (AK-80-...)
  - Grille length:
    - 625 mm (-00625)
    - 1025 mm (-01025)
  - Grille height:
    - 115 mm (-115)
    - 215 mm (-215)
  - Single / band design:
    - Single design (-N)
  - Mounting:
    - screw mounting (-SM) (standard, screws must be provided on site)
  - Damper:
    - Without damper (-DK0) (standard)
    - with damper (-DK2), made of galvanised sheet steel, in plenum box housing, with cable-operated adjustment, for easy air volume regulation.
  - Rubber lip seal:
    - without rubber lip seal (-GD0) (standard)
    - With rubber lip seal (-GD1) on the connection spigot
  - Insulation:
    - without insulation (-I0) (standard)
    - With internal insulation (-Ii), thermal insulation inside the plenum box
    - with external insulation (-Ia), thermal insulation on the outside of the plenum box

Construction subject to change. No return possible.

- Height of box:
  - Standard height of box (-KHS)
  - height of box in mm, freely selectable (always 3 digits) (minimum height [KHS] for spigot position S1 and for standard box neck (75 mm) = spigot diameter øD + 172 mm, minimum height [KHS] for spigot position S0 is min. 200 mm)
- Spigot diameter:
  - Standard spigot diameter (-SDS)
  - spigot diameter (øD) in mm, freely selectable (-xxx, always with 3 digits)
- Spigot position:
  - Spigot from above (-S0)
  - Lateral spigot on the plenum box (-S1) (standard)