



Floor Swirl Diffuser

Model BDA



Ferdinand Schad KG
Steigstraße 25-27
D-78600 Kolbingen
Telephone +49 (0) 74 63 - 980 - 0
Fax +49 (0) 74 63 - 980 - 200
info@schako.de
www.schako.de

Floor Swirl Diffuser Model BDA

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Floor Swirl Diffuser Model BDA

Description

The SCHAKO floor swirl diffuser type BDA is suitable for **installation in false floors of rooms of high thermal loads** such as computer rooms. The **high induction** created by the swirl **quickly reduces both temperature and flow velocity near the floor**. The swirl was selected to ensure a sufficient penetration depth in cooling mode without creating pools of cold air. The supply air volume should be selected such that the vertical throw is at least as high as the occupied zone, for example 1.30 m when the occupants of the room are predominantly seated. The swirl diffuser consists of a swirl plate and a galvanised steel dirt collection basket. The basket bottom of the dirt collection basket is height-adjustable. It is therefore possible to set the volume of supply air of each diffuser if there are different pressure drops. Up to four diffusers can be integrated into one floor tile. The supply air temperature should not be less than 19°C and the allowed temperature difference between supply and return air should be < 10 K.

Load bearing capacity of the swirl plate

NW	ø150	ø200
BDA-K	3 kN	3 kN
BDA-AH	10 kN	10 kN
BDA-MH	10 kN	10 kN

The data refers to an individual load applied vertically by means of a piston 50 mm in diameter.

Construction

Swirl plate

- made of plastic
- made of highly polished brass
- made of highly polished aluminium

Model

- BDA-K1 - Plastic swirl plate similar to RAL colour 1019 (grey-beige)
- BDA-K2 - Swirl plate made of plastic, similar to RAL 7037 colour (dusty grey)
- BDA-K4 - Swirl plate made of plastic, similar to RAL 8014 colour (sepia brown)
- BDA-K5 - Swirl plate made of plastic, similar to RAL 9001 colour (cream)
- BDA-K6 - Swirl plate made of plastic, similar to RAL 9005 colour (deep black)
- BDA-MH - Brass swirl plate
- BDA-AH - Aluminium swirl plate

Accessories

Plenum box (-AK BDA)

- Galvanised sheet steel
- Mounting ring without flange, without fastening prongs (-EBR1)
 - made of highly polished aluminium
 - made of highly polished brass
- Mounting ring with flange 12mm, with fastening prongs (-EBR2)
 - made of plastic (BDA-K1-6 only), in the same colour as BDA-K
 - made of highly polished aluminium
 - made of highly polished brass
- Mounting ring without flange, with fastening prongs (-EBR3)
 - made of highly polished aluminium
 - made of highly polished brass

Rubber lip seal (-GD) (NW 200 only)

- Special rubber

Dirt collection basket (-SFK1)

- Galvanised sheet steel

Internal insulation (-li)

- thermal insulation at the inside of the plenum box

External insulation (-la)

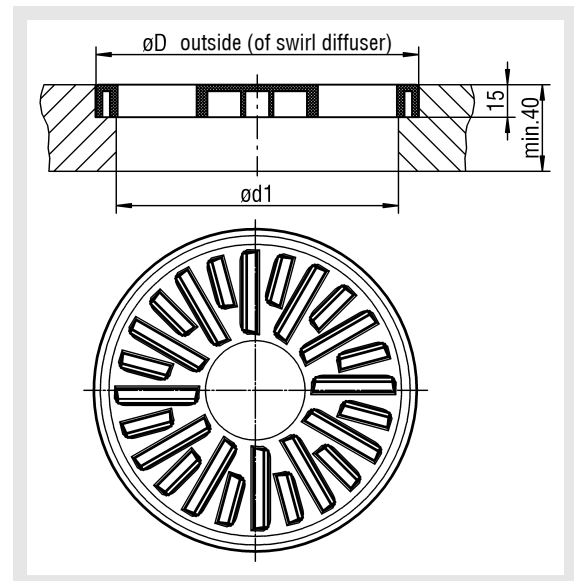
- thermal insulation at the outside of the plenum box

Note: The mounting must be ordered separately.

Models and dimensions

Dimensions

BDA-K / -MH / -AH



Available sizes

NW	øD	ød1
150	149	132
200	199	178

Floor Swirl Diffuser Model BDA

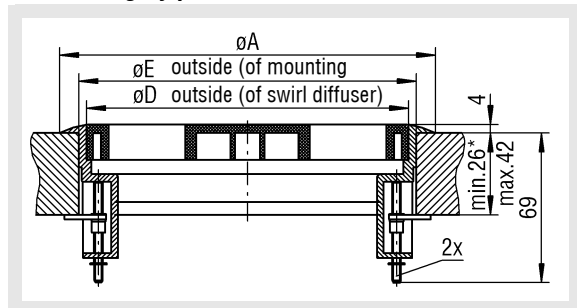
Dimensions of accessories

with mounting ring (-EBR2), with flange 12mm, with fastening prongs

made of plastic (BDA-K only)

made of highly polished brass

made of highly polished aluminium



*for BDA-MH and BDA-AH min. 30 / max. 45

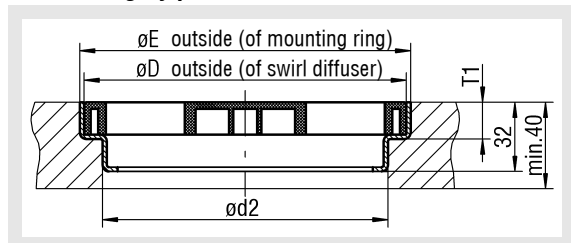
Available sizes

NW	$\varnothing D$	BDA-K		BDA-MH		BDA-AH	
		$\varnothing A$	$\varnothing E$	$\varnothing A$	$\varnothing E$	$\varnothing A$	$\varnothing E$
150	149	174	156	173	155	173	155
200	199	223	206	222	205	222	205

with mounting ring (-EBR1), without flange, without fastening prongs

made of highly polished brass

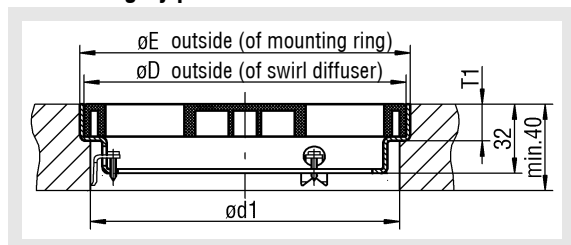
made of highly polished aluminium



with mounting ring (-EBR3), without flange, with fastening prongs

made of highly polished brass

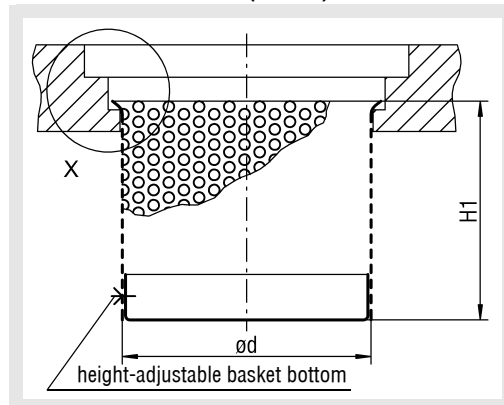
made of highly polished aluminium



Available sizes

	NW	$\varnothing D$	$\varnothing E$	$\varnothing D1$	$\varnothing D2$	T 1
BDA-MH	150	149	155	145	134	18
BDA-AH			155	145	134	18
BDA-MH	200	199	208	198	186	18
BDA-AH			208	198	186	18

Dirt collection basket (-SFK1)

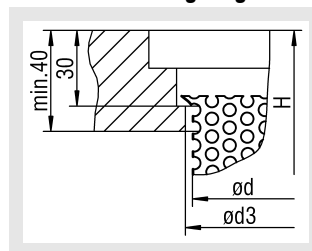


Available sizes SFK1

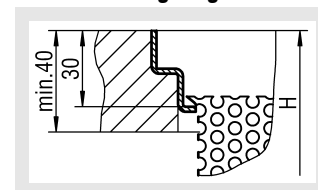
NW	$\varnothing d$	$\varnothing d3$	H	H1
150	115	117	127	100
200	162	164	143	110

Installation situation dirt collection basket

without mounting ring

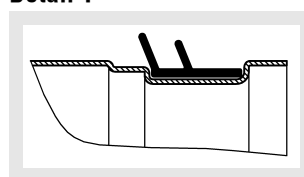


with mounting ring



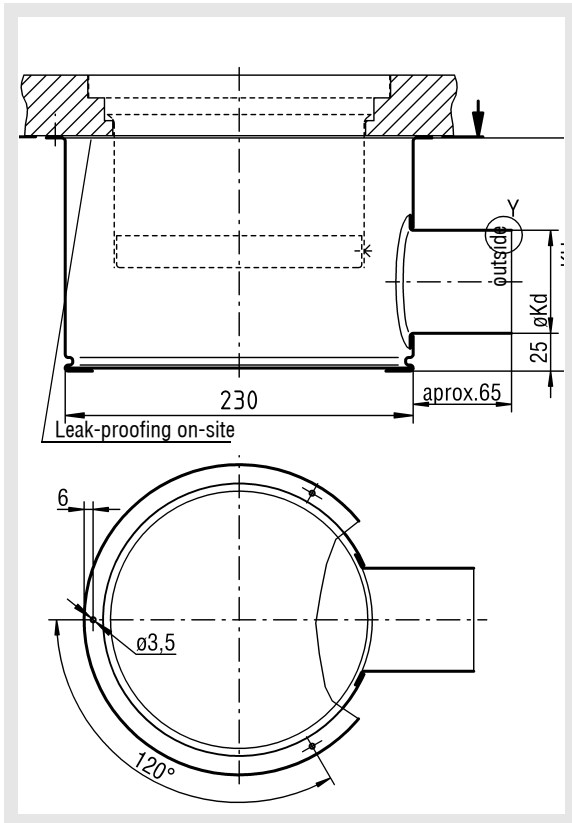
Rubber lip seal (-GD) (NW 200 only)

Detail Y



Floor Swirl Diffuser Model BDA

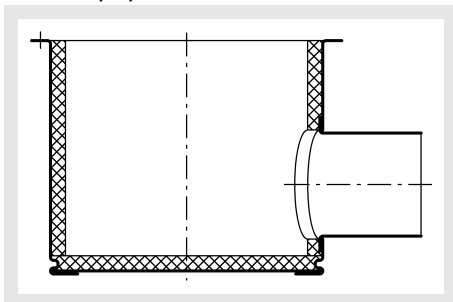
Plenum box (-AK BDA)



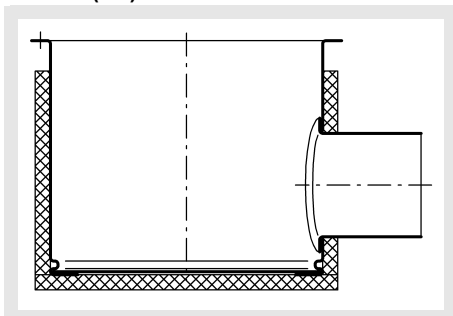
Available sizes plenum box BDA

NW	øF	øKD	øKd	KH
150	205	180	68	154
200	255	230	123	170

Insulation for plenum box BDA internal (-li)

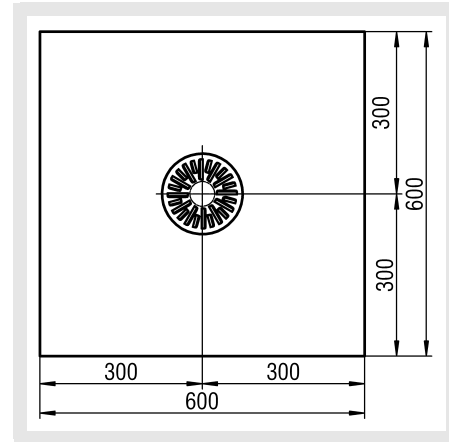


outside (-la)



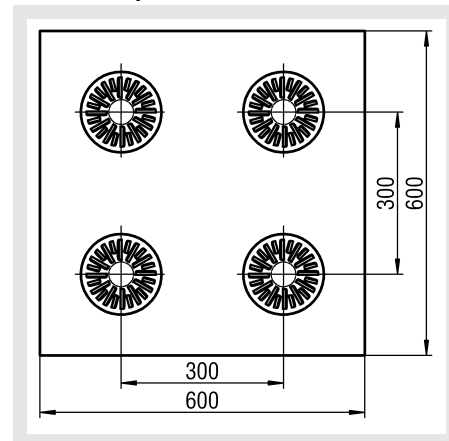
Installation

1 diffuser per floor tile



The configuration of the number of diffusers required can be matched to the dimensions of the room. Up to 4 diffusers can be integrated into one floor tile in areas occupied by machines. With such high thermal loads per floor tile the loss of comfort is inevitable.

4 diffusers per floor tile



Selection table

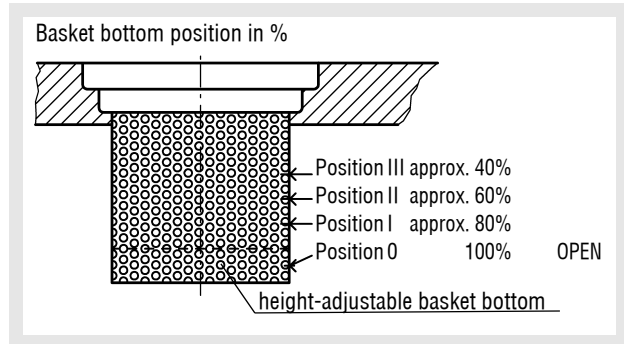
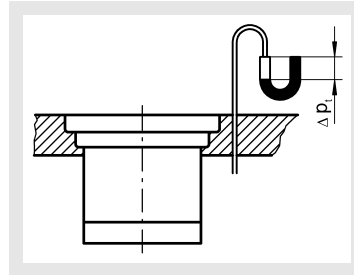
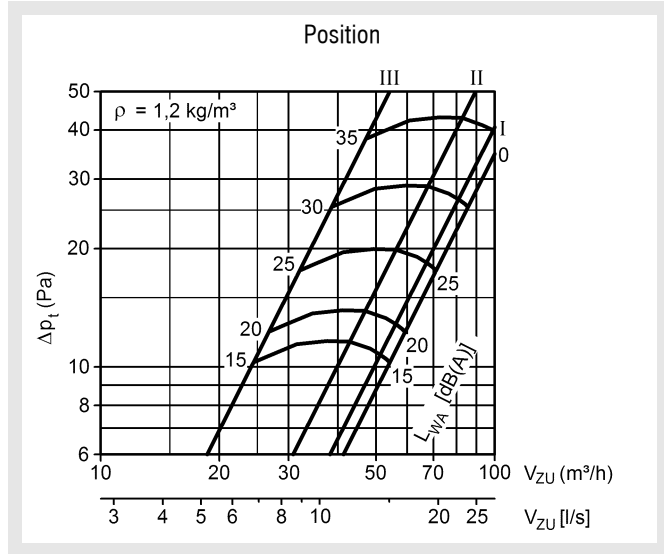
Area occupied by machines	= 50 m ³ /h per diffuser
Area occupied by people	= about 35 m ³ /h per diffuser
Supply air temperature	≥ 19 °C
Max. temperature difference	
Supply air - return air	= 10 K

Floor Swirl Diffuser Model BDA

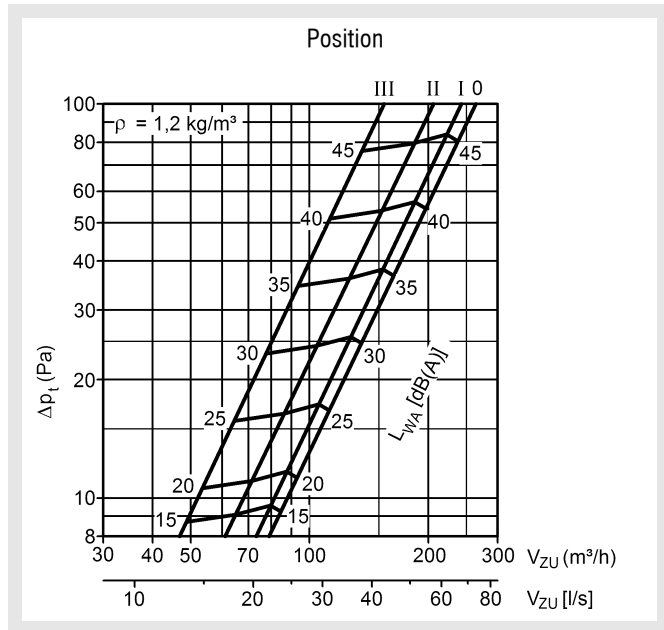
Technical data

Pressure loss and noise level

BDA 150



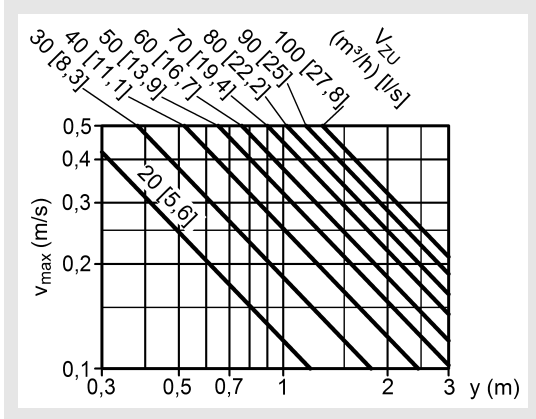
BDA 200



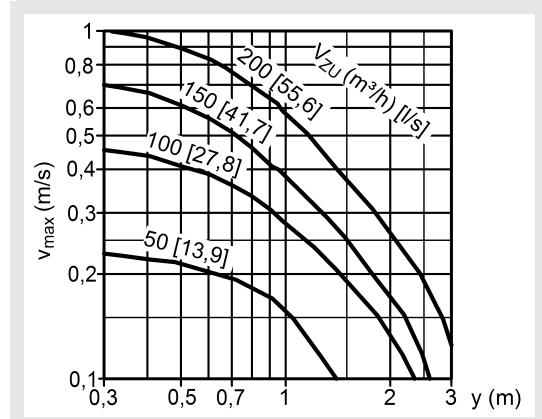
Floor Swirl Diffuser Model BDA

Maximum end velocity of jet

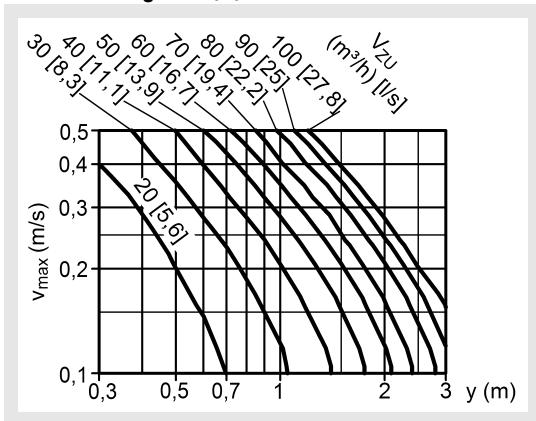
BDA 150, $\Delta T_0 = 0$ (K)



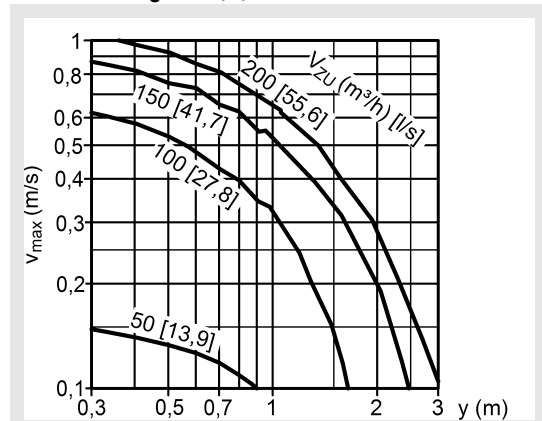
BDA 200, $\Delta T_0 = 0$ (K)



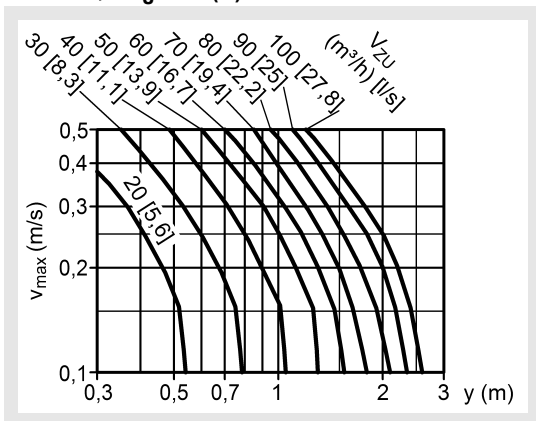
BDA 150, $\Delta T_0 = -2$ (K)



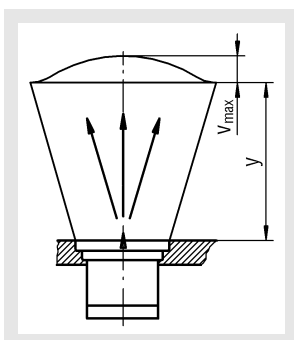
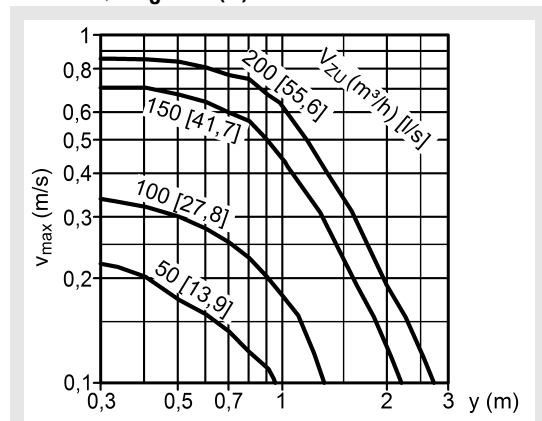
BDA 200, $\Delta T_0 = -2$ (K)



BDA 150, $\Delta T_0 = -4$ (K)

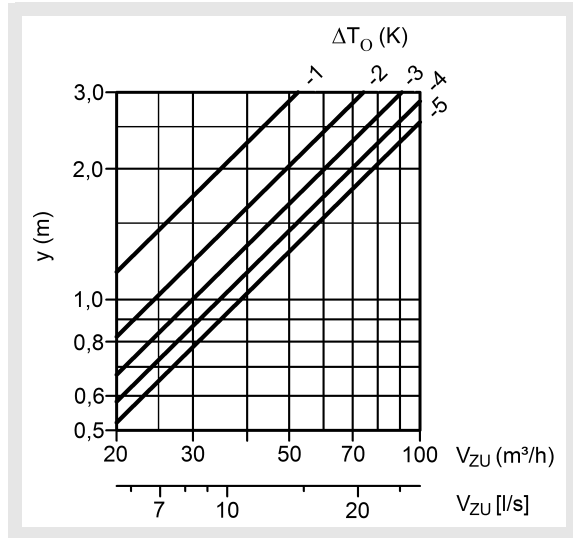


BDA 200, $\Delta T_0 = -4$ (K)

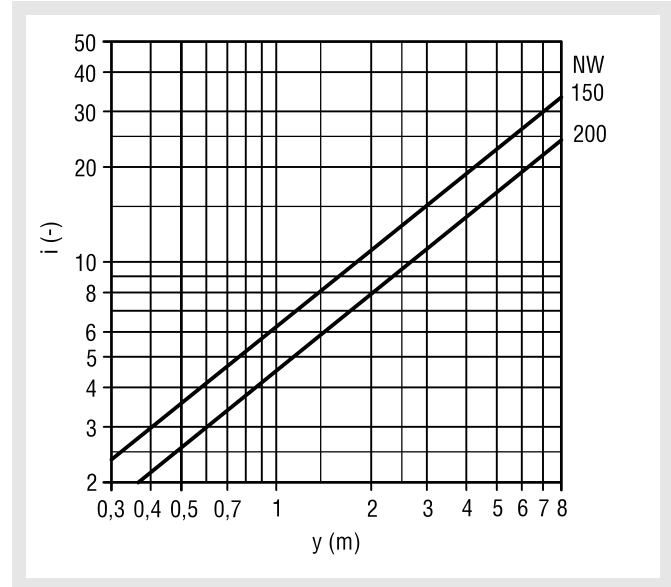


Floor Swirl Diffuser Model BDA

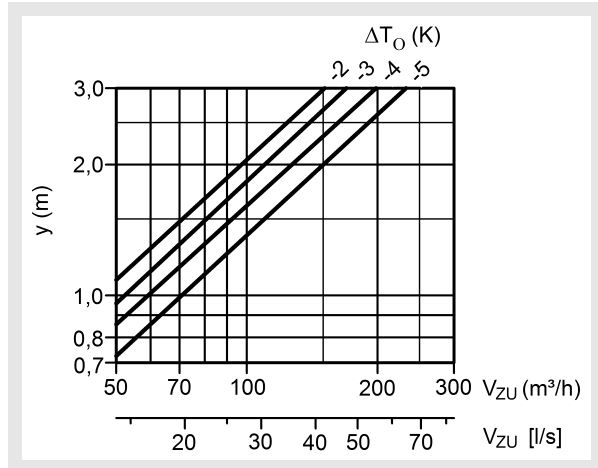
Maximum penetration BDA 150 (cooling mode)



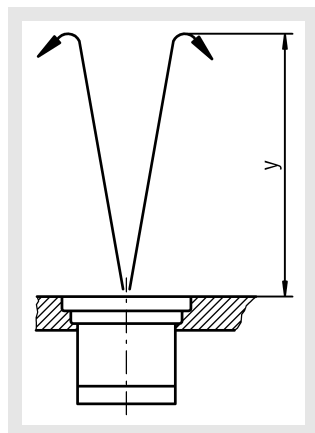
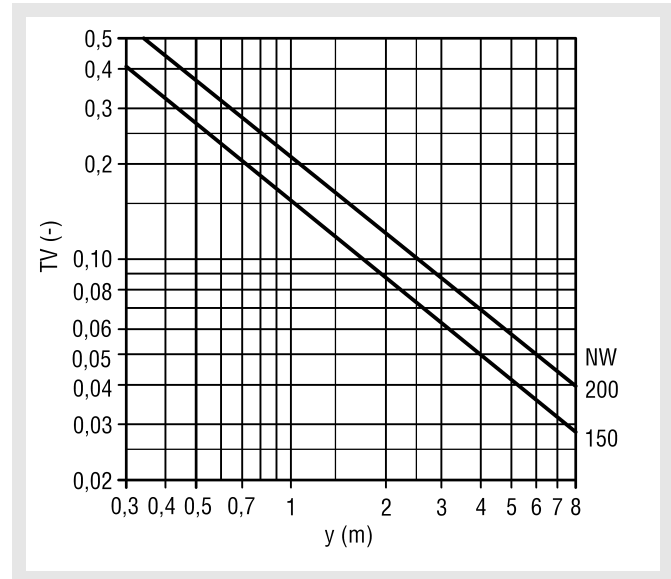
Induction ratio



BDA 200 (cooling mode)



Temperature ratio



Floor Swirl Diffuser Model BDA

Legend

v_{\max} (m/s) = Maximum end velocity of jet	L_{WA} [dB(A)] = A-weighted sound power level
v_{mittel} (m/s) = Average end velocity of jet ($v_{\text{mittel}} = v_{\max} \times 0.33$)	Δp_t (Pa) = Total pressure loss
y (m) = Vertical throw	ρ (kg/m ³) = Density
V_{ZU} (m ³ /h) = Supply air volume	NW (mm) = Nominal value
V_{ZU} [l/s] = Supply air volume	i (-) = Induction ratio ($i = V_x / V_{ZU}$)
ΔT_0 (K) = Temperature difference between supply air temperature and room temperature ($\Delta T_0 = t_{ZU} - t_R$)	TV (-) = Temperature ratio ($TV = \Delta T_x / \Delta T_0$)
t_{ZU} (°C) = Supply air temperature	V_x (m ³ /h) = Total air jet volume at point x
t_R (°C) = Room temperature	V_x [l/s] = Total air jet volume at point x
v_{\max} (m/s) = Maximum end velocity of jet	ΔT_x (K) = Temperature difference at point x
v_{mittel} (m/s) = Average end velocity of jet ($v_{\text{mittel}} = v_{\max} \times 0.33$)	L_{WA} [dB(A)] = A-weighted sound power level

Order code BDA

01	02	03	04
type	Material	Size	Dirt collection basket
Example			
BDA	-K1	-200	-SFK1

Sample

BDA-K1-200-SFK1

Floor swirl diffuser type BDA | plastic RAL1019 | NW200 | with dirt collection basket

Order details

01 - Type

BDA = Floor Swirl Diffuser

02 - Material

- AH = Highly polished aluminium
- MH = Highly polished brass
- K1 = Plastic RAL1019 (grey-beige)
- K2 = Plastic RAL7037 (dust-grey)
- K4 = Plastic RAL8014 (sepia brown)
- K5 = Plastic RAL9001 (cream)
- K6 = Plastic RAL9005 (deep black)

03 - Size

- 150 = NW150
- 200 = NW200

04 - Dirt collection basket

- SFK0 = without dirt collection basket
- SFK1 = with dirt collection basket

Floor Swirl Diffuser Model BDA

Order code Accessories EBR-BDA

01	02	03	04
Accessories	Type	Size	Material
Example			
EBR1	-BDA	-200	-AH

Sample EBR1-BDA-200-AH

Accessories Mounting ring for swirl diffuser BDA | NW200 | Highly polished aluminium

Order details

01 - Accessories

- EBR1 = Mounting ring without flange, without fastening prongs (material only available for -AH or -MH)
- EBR2 = Mounting ring with flange 12mm, with fastening prongs
- EBR3 = Mounting ring without flange, with fastening prongs (material only available for -AH or -MH)

02 - Type

BDA = Floor Swirl Diffuser

03 - Size

- 150 = NW150
- 200 = NW200

04 - Material

- AH = Highly polished aluminium
- MH = Highly polished brass
- K1 = Plastic RAL1019 (grey-beige)
- K2 = Plastic RAL7037 (dust-grey)
- K4 = Plastic RAL8014 (sepia brown)
- K5 = Plastic RAL9001 (cream)
- K6 = Plastic RAL9005 (deep black)

All swirl diffusers can be combined with all mounting rings.

Order code Accessories AK-BDA

01	02	03	04	05
Accessories	Type	Size	Rubber lip seal	insulation
Example				
AK	-BDA	-200	-G0	-la

Sample AK-BDA-200-G0-la

Accessories Plenum box for swirl diffuser BDA | NW200 | without rubber lip seal | with external insulation

Order details

01 - Accessories

AK = Plenum box

02 - Type

BDA = Floor Swirl Diffuser

03 - Size

- 150 = NW150
- 200 = NW200

04 - Rubber lip seal

- G0 = without rubber lip seal
- GD = with rubber lip seal (only NW200)

05 - Insulation

- l0 = without insulation
- li = with internal insulation
- la = with external insulation

Floor Swirl Diffuser Model BDA

Specification texts

Floor swirl diffuser type BDA to be installed in false floors, comprising a plastic swirl plate, with radial slots for clockwise swirl. The high induction created by the swirl quickly reduces both temperature and flow velocity near the floor.

Product: SCHAKO **type BDA-K**

Swirl plate made of plastic, similar to RAL colour:

BDA-K1 - RAL 1019 (grey beige)

BDA-K2 - RAL 7037 (dust-grey)

BDA-K4 - RAL 8014 (sepia brown)

BDA-K5 - RAL 9001 (cream)

BDA-K6 - RAL 9005 (deep black)

Size:

- 150
- 200

- Highly polished brass swirl plate

Product: SCHAKO **type BDA-MH**

- Highly polished aluminium swirl plate

Product: SCHAKO **type BDA-AH**

Accessories:

- Mounting ring without flange, without fastening prongs (-EBR1)
 - made of highly polished aluminium
 - made of highly polished brass
- Mounting ring with flange 12mm, with fastening prongs (-EBR2)
 - made of plastic (BDA-K1-6 only), in the same colour as BDA-K
 - made of highly polished aluminium
 - made of highly polished brass
- Mounting ring without flange, with fastening prongs (-EBR3)
 - made of highly polished aluminium
 - made of highly polished brass
- Dirt collection basket (-SFK1) made of galvanised sheet steel, with adjustable basket bottom for volumetric flow regulation.
- Plenum box (-AK-BDA) made of galvanised sheet steel
 - with rubber lip seal (-GD, NW 200 only) on the connection pipe
 - with thermal insulation
 - internal (-li)
 - external (-la)