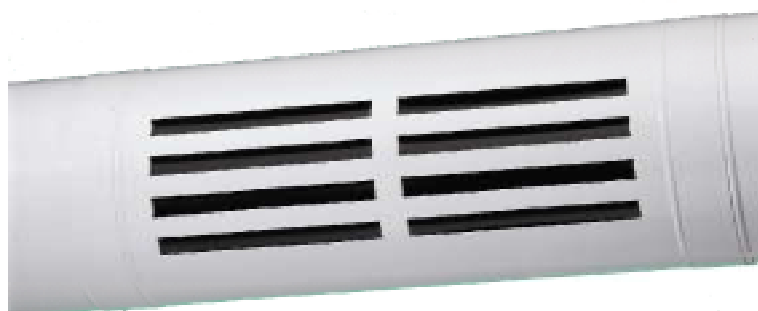


## Diffuser for round duct DBB-RR



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**DBB-RR**

## **Diffuser for round duct**

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## DBB-RR

# Diffuser for round duct

## Description

In modern architecture, sheet metal and folded spiral seam ducts are used for air conditioning systems, incorporated into the design of the room. Sections of the system are intentionally left on display. The visible installation of the ventilation pipes allows air diffusers to be integrated into the pipe.

In order to be able to offer planners a technically advanced air diffuser, which can also be well integrated into modern architectural concepts, we have developed our round duct diffuser type DBB-RR.

Our diffuser DBB-RR consists of a round duct with integrated, linear blades which can also be adjusted by hand in-situ. The central aligned blades in support profile sections ensure that the free profile at any blade is the same, allowing changing of blade position without affecting noise and pressure loss. In heating case a large penetration depth is possible which provides an effective, cost saving heating phase. In cooling, end velocity and temperature ratio are reduced that there are no draughts in the occupied zone.

The large expenditure of the system adjustment for these round duct systems can be reduced considerably by using an additional volume adjustment system type MES.

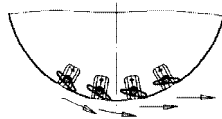
A hit and miss damper can be installed in the diffuser which ensures uniform admission of the entire diffuser surface. This uniform admission means that the round duct diffuser type DBB-RR can be installed at any point along the duct system.

Accessories such as dummy pipes, end covers and connecting sleeves complete our range of round duct diffusers. (see documents Accessories to round duct diffuser).

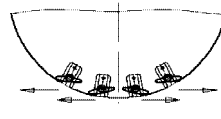
- Advantages:**
- Sound power levels and pressure loss remain constant in all blade positions.
  - Easy installation by using insert connectors with rubber gasket.
  - Volume adjustment system type MES means time saving system regulation.
  - Easy to clean sturdy smooth duct pipes.

### Blade adjustment possibilities

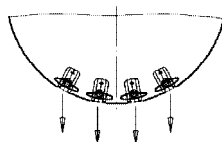
#### direction of air flow:



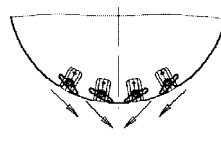
one way horizontal outflow



two way horizontal outflow



vertical



converging outflow

## Construction

Blades

- Plastic RAL 9010 (white) or RAL 9005 (black)
- Painted aluminium to the RAL color of the face plate.

Round duct

- Painted sheet steel RAL 9010 (white)
- Raw aluminium
- Stainless steel 1.4301 (V2A) coloured in sand silver

## DBB-RR

### Diffuser for round duct

#### Model

- DBB-RR-Z - Supply air mode with air deflection blades.
- DBB-RR-A - Extract air system air deflection blades removed.

#### Accessories

- Electric actuator (-E) - 24 V AC / 50 Hz for 3 point control (from size 400 upwards , not available together if a hit and miss damper is fitted - (SS)
- Hit and miss damper (-SS) - Made of the same material as the round duct

#### Fixing

- Mounting - Ready to be mounted using a M8 adjustment rod provided by the customer

#### Features

##### Attention!

We would like to draw your attention to the fact that the stainless models are exclusively to be cleaned by using a special cleanser.

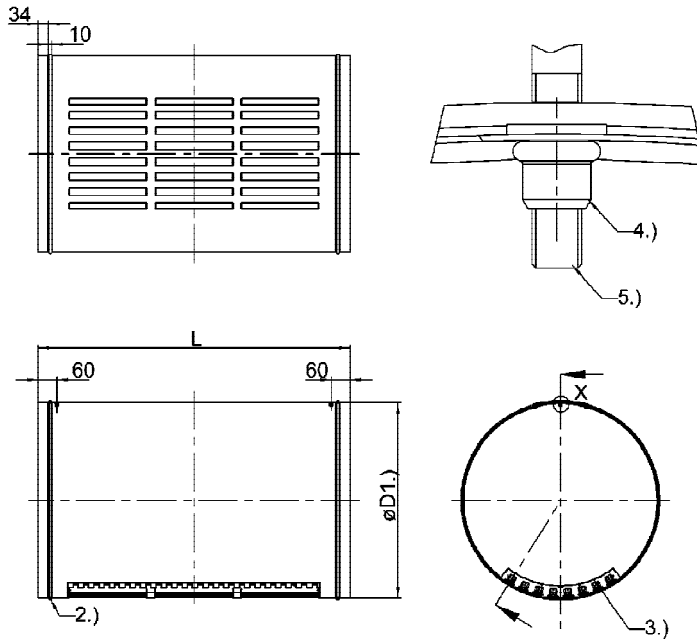
## DBB-RR

### Diffuser for round duct

#### Models and dimensions

##### Dimensions

DBB-RR Detail X



- 1.) External
- 2.) Banding from size 500
- 3.) Hit and miss damper (optional extra)
- 4.) Locking nut M 8
- 5.) Threaded rod on site

##### Available sizes

NW	ød	SU							L	SL	NW	ød	SU							L	SL
		2	4	6	8	10	12	14					2	4	6	8	10	12	14		
200	198	x	-	-	-	-	-	-	500	1	450	448	x	x	x	x	-	-	-	1500	4
224	222	x	x	-	-	-	-	-			500	498	x	x	x	x	x	x	x		
250	248	x	x	-	-	-	-	-	750	2	560	558	x	x	x	x	x	x	x	1750	5
280	278	x	x	-	-	-	-	-			560	628	x	x	x	x	x	x	x		
315	313	x	x	x	-	-	-	-	1000	3	710	708	x	x	x	x	x	x	x	2000	6
355	353	x	x	x	-	-	-	-			710	798	x	x	x	x	x	x	x		
400	398	x	x	x	-	-	-	-			900	898	x	x	x	x	x	x			

All combined lengths and height available.

- x = Available  
 - = Not available

- I = 1 part  
 II = 2 part  
 SU = number of slots along extension  
 SL = number of slot along length

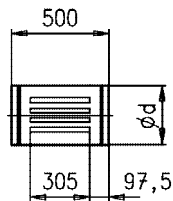
## DBB-RR

### Diffuser for round duct

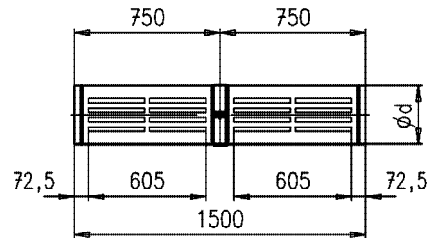
Division of length  
1 part

2-part

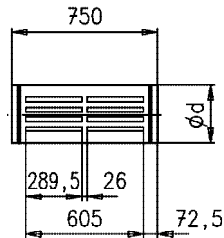
Length 500



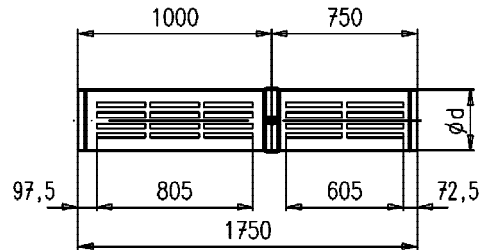
Length 1500



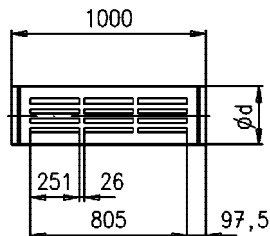
Length 750



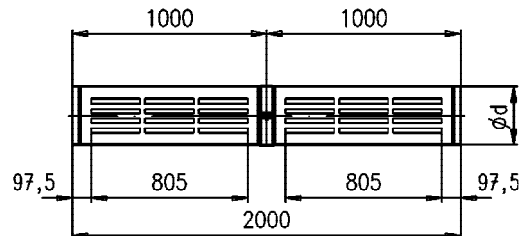
Length 1750



Length 1000



Length 2000



Round duct diffuser with a length of  $> 1000$  are produced in two sections and joined at factory with a sleeve. Locking nuts are not required at this impact side. The dimensions of the dummy pipes are the same as the dimensions of the diffuser type DBB-RR. Other lengths are available on request. However, the maximum length for a middle or end piece is 1000 mm.

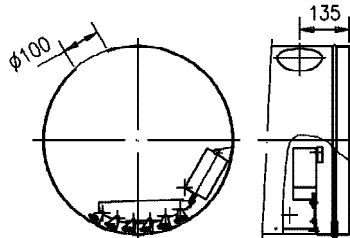
DBB-RR

## Diffuser for round duct

Accessories - dimensions

(optional extra)

Electric actuator (-E)



Electric actuator can only be added starting from size 400 upwards.

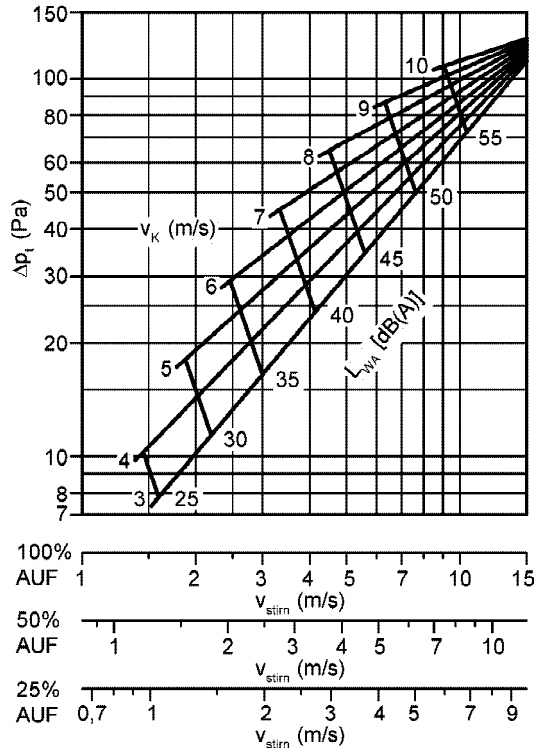
Not available with hit and miss damper type SS. If the electric actuator is added, a maintenance opening is integrated into the top of the pipe.

DBB-RR

## Diffuser for round duct

### Technical data

#### Pressure loss and noise level



#### Correction factor pressure loss and noise level

NW	$V_{zu}$ (bei $v_k=1$ m/s) (m <sup>3</sup> /h) [l/s]		FQ (m <sup>2</sup> )							L	KF	
	SU											
			2	4	6	8	10	12	14			
200	108	30	0,01	0,02	-	-	-	-	-	I	500	x 2,00
224	139	39	0,01	0,02	-	-	-	-				
250	174	48	0,01	0,02	-	-	-	-				
280	219	61	0,01	0,02	0,03	-	-	-	750		x 1,33	
315	277	77	0,01	0,02	0,03	-	-	-	1000		x 1,00	
355	356	99	0,01	0,02	0,03	-	-	-				
400	448	124	0,01	0,02	0,03	0,04	-	-	-		1500	x 0,66
450	567	158	0,01	0,02	0,03	0,04	-	-				
500	701	195	0,01	0,02	0,03	0,04	0,05	0,06	0,07			
560	978	272	0,01	0,02	0,03	0,04	0,05	0,06	0,07	II	1750	x 0,57
630	1115	310	0,01	0,02	0,03	0,04	0,05	0,06	0,07			
710	1417	394	0,01	0,02	0,03	0,04	0,05	0,06	0,07			
800	1801	500	0,01	0,02	0,03	0,04	0,05	0,06	0,07			
900	2280	633	0,01	0,02	0,03	0,04	0,05	0,06	0,07			

SU = number of slots along extension

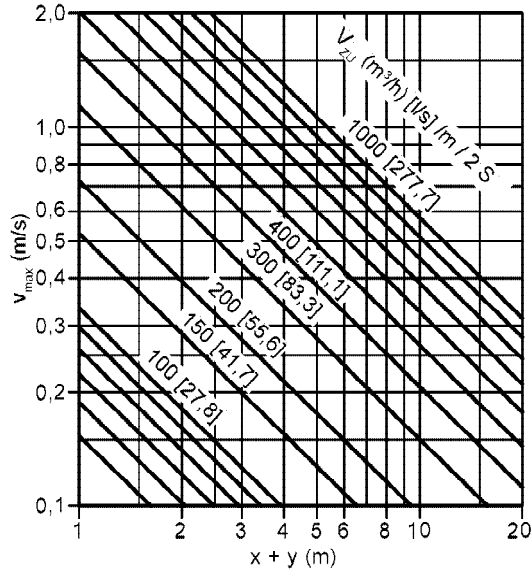
AUF = position of hit and miss damper

$$v_{face} = v_{supp} \text{ (m}^3\text{/h)} : (\text{FQ} \times 3600) \times \text{KF}$$

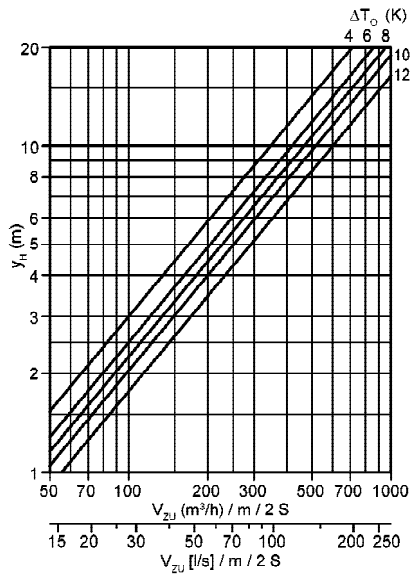
## DBB-RR

### Diffuser for round duct

#### Maximum end velocity



#### Maximum penetration



#### Correction factor max. end velocity

SU	2	4	6	8	10	12	14
HE	1	1,2	1,4	1,68	2,02	2,42	2,88
HL/R	0,58	0,72	0,8	0,96	1,17	1,39	1,67

SU = number of slots along extension  
 HE = horizontal one way  
 HL/R = horizontal left / right

#### Correction factor max. penetration depth

SU	2	4	6	8	10	12	14
V	1	1,17	1,36	1,59	1,86	2,18	2,55
ÜK	1,2	1,44	1,73	2,08	2,49	2,99	3,58

SU = number of slot along extension  
 V = vertical  
 ÜK = converging

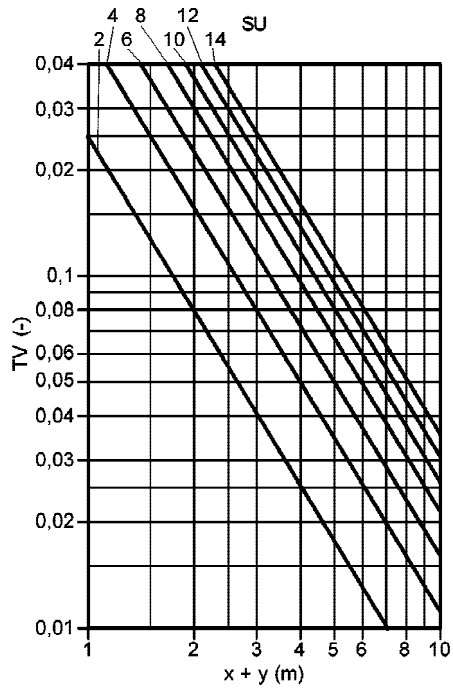
DBB-RR

## Diffuser for round duct

Temperature ratio

Temperature ratio

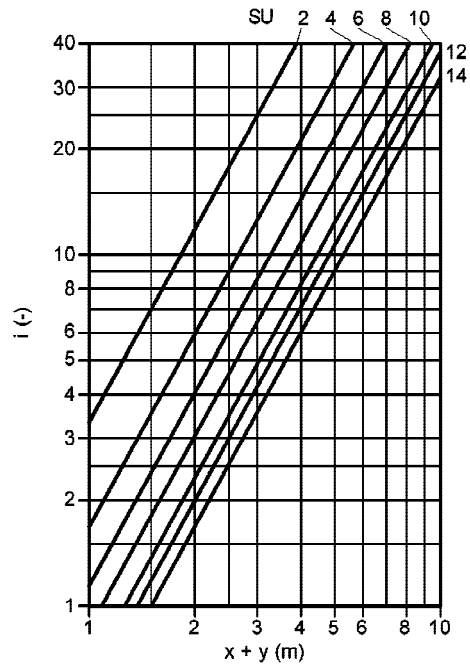
Horizontal outflow, one way



SU = number of slots along extension

Induction ratio

Horizontal outflow, one way



## DBB-RR

### Diffuser for round duct

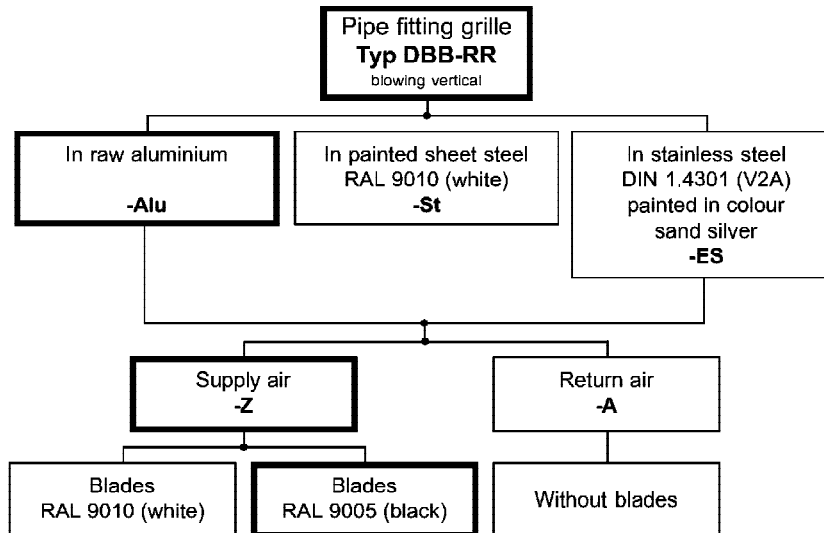
#### Legend

$V_{\text{supp}}$ ( $\text{m}^3/\text{h}/\text{m}/2\text{S}$ )	=	Supply air volume per 2 slots
$V_{\text{supp}}$ [ $\text{l}/\text{s}/\text{m}/2\text{S}$ ]	=	Supply air volume per 2 slots
$\Delta p_1$ (Pa)	=	Pressure loss
$v_{\text{face}}$ (m/s)	=	Inflow, outflow and exit velocity relative to $A_{\text{face}}$
$v_{\text{max}}$ (m/s)	=	Max. final velocity
$v_k$ (m/s)	=	Duct velocity
$L_{\text{WA}}$ [dB(A)]	=	A-rated sound power level
$x + y$ (m)	=	Horizontal and vertical jet path
$y$ (m)	=	Max. penetration depth in heating case
$\Delta T_0$ (K)	=	Temperature difference between supply and room air temperature ( $\Delta T_0 = t_{\text{supply}} - t_{\text{room}}$ )
$t_{\text{supp}}$ ( $^{\circ}\text{C}$ )	=	Supply air temperature
$t_{\text{room}}$ ( $^{\circ}\text{C}$ )	=	Room temperature
$i$ (-)	=	Induction ratio
TV (-)	=	Temperature ratio
$V_{\text{tot}}$ ( $\text{m}^3/\text{h}$ )	=	Total air volume
$V_{\text{sla}}$ ( $\text{m}^3/\text{h}$ )	=	Partial air volume
$P_{\text{dy1}}$ (Pa)	=	Dynamic pressure
$P_{\text{dy2}}$ (Pa)	=	Dynamic pressure
$L$ (mm)	=	Length
CF (-)	=	Correction factor
FQ ( $\text{m}^2$ )	=	Free open section
NW	=	Nominal diameter
SU	=	Number of slots along circumference
SL	=	Number of slots along length
HE	=	Horizontal one way
HL/R	=	Horizontally left / right
V	=	Vertical
ÜK	=	Accross
I	=	1-part
II	=	2-parts

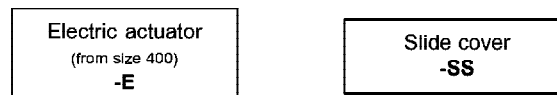
DBB-RR

## Diffuser for round duct

### Order details



#### Accessories:



#### Order example:

DBB-RR-St

**At non-specified order the thick framed design will be delivered!**

## DBB-RR

### Diffuser for round duct

#### Specification texts

Round duct diffuser for connections to DIN ducts. With integrated, manually adjustable aerodynamic deflection blades from plastic, in colours RAL 9010 (white), RAL 9005 (black) or painted aluminium in the RAL colour of the round duct (blades are not adjustable later). Volume level and pressure loss remain constant in all blade positions.

Manufacturer: SCHAKO **type DBB-RR-Z.**

- Air outflow without air deflection blades  
Manufacturer: SCHAKO **type DBB-RR-A**
  
- Round duct made of:
  - Painted sheet steel RAL 9010 (white)
  - Natural aluminium
  - Stainless steel 1.4301 (V2A) colour 'sand silver'.

#### Accessories:

- Hit and miss damper (-SS), to regulate the air volume, produced of the same material as the round pipe
- Electric actuator (-E) 24 V AC / 50 Hz for 3-point-drive (from size 400 upwards possible, not available with hit and miss damper type SS)