

# Wall diffuser

# PR1



## Description

PR1 is a rectangular diffuser for installation in a wall or skirting board with perforated front plate in various designs (see summary). The diffuser is suitable for the horizontal supply of cooled air and exhaust. The diffuser for supply air is used with a WB type plenum box, and for air exhaust, with a VBA type plenum box. The plenum boxes are equipped with a damper and measuring device, enabling individual adjustment.

- Large capacity
- Discrete appearance
- Regardless of straight ducting before the diffuser
- Telescopic function in the plenum box

## Maintenance

The front can be removed and the damper taken out for cleaning of internal parts or to gain access to the duct. The visible parts of the diffuser can be wiped with a damp cloth.

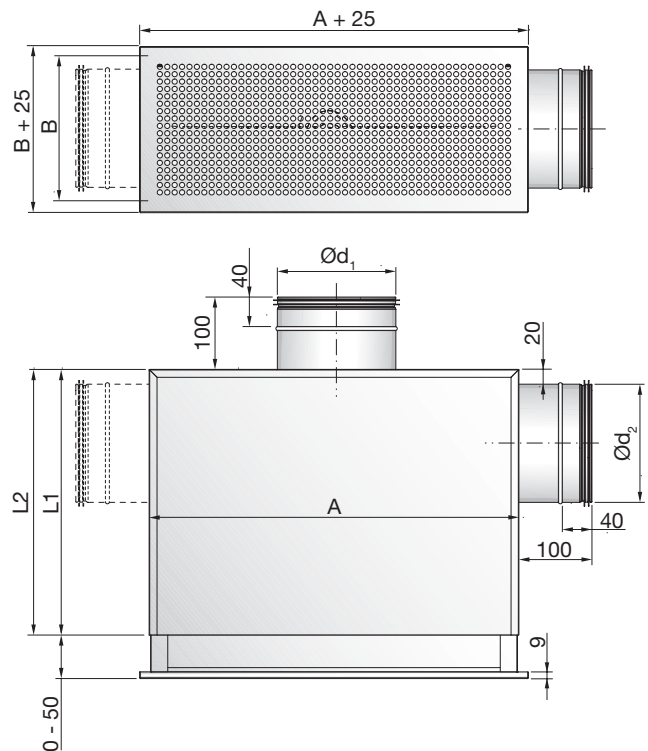
## Order code

<b>Product</b>	PR	a	B	A x B
<b>Type</b>	PR			
<b>Pattern</b>		Pattern 1 - 4		
<b>Functional use</b>		S ( Supply air ) E ( Exhaust air )		
<b>Size (A x B)</b>				300x100 - 500x300

<b>Product</b>	WB	a	A x B
<b>Type</b>	WB		
<b>Connection</b>		1 = Back 2 = Side	
<b>Size (A x B)</b>			300x100 - 500x300

Example: PR-1-S-400x150 + WB-1-400x150

## Dimensions



### WB-1 Back connection

A x B Size mm	Ød <sub>1</sub> mm	A mm	B mm	L1 mm	m kg
300 - 100	80	300	100	240	2,50
400 - 150	100	400	150	240	3,50
500 - 150	125	500	150	240	4,30
500 - 200	160	500	200	240	5,50
500 - 300	200	500	300	240	7,40

### WB-2 Side connection

A x B Size mm	Ød <sub>2</sub> mm	A mm	B mm	L2 mm	m kg
300 - 100	80	300	100	280	2,50
400 - 150	100	400	150	300	3,50
500 - 150	125	500	150	325	4,30
500 - 200	160	500	200	360	5,50
500 - 300	200	500	300	400	7,40

## Materials and finish

Diffuser: Galvanised steel  
 Standard finish: Powder-coated  
 Standard colour: 9010 white, gloss 30

The diffuser is available in other colours. Please contact Lindab's sales department for further information.

# Wall diffuser

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## Technical data

### Capacity

Volume flow  $q_v$  [l/s] and [m<sup>3</sup>/h], total pressure loss  $\Delta p_t$  [Pa], throw  $l_{0,2}$  and sound level  $L_{WA}$  [dB(A)] can be seen in the diagrams.

### Frequency-related sound effect level

The sound effect level in the frequency band is defined as  $L_{WOK} = L_{WA} + K_{OK}$ .  $K_{OK}$  values are specified in charts beneath the diagrams on the following pages.

### Quick selection

#### WB-1 Back connection

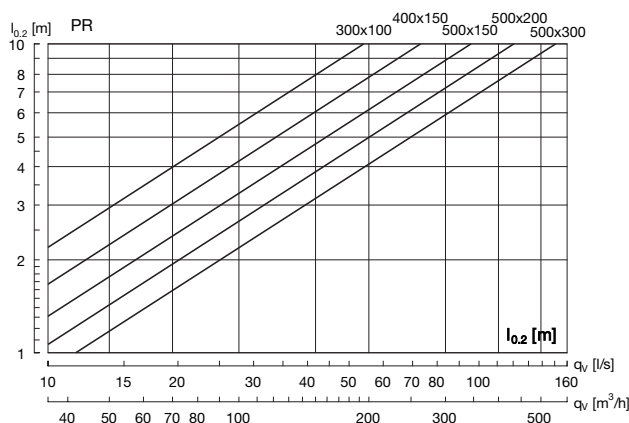
A x B mm	Minimum $P_i > 5$ Pa		$p_t = 50$ Pa $L_{WA} = 30$ dB(A)		$p_t = 50$ Pa $L_{WA} = 35$ dB(A)	
	l/s	m <sup>3</sup> /h	l/s	m <sup>3</sup> /h	l/s	m <sup>3</sup> /h
300 - 100	12	42	23	83	28	101
400 - 150	22	78	-	-	40	144
500 - 150	34	122	37	133	60	216
500 - 200	38	138	-	-	79	284
500 - 300	38	137	83	299	107	385

#### WB-2 Side connection

A x B mm	Minimum $P_i > 5$ Pa		$p_t = 50$ Pa $L_{WA} = 30$ dB(A)		$p_t = 50$ Pa $L_{WA} = 35$ dB(A)	
	l/s	m <sup>3</sup> /h	l/s	m <sup>3</sup> /h	l/s	m <sup>3</sup> /h
300 - 100	10	37	21	76	27	97
400 - 150	22	81	34	122	43	155
500 - 150	28	102	-	-	57	205
500 - 200	34	122	62	223	76	274
500 - 300	46	165	-	-	-	-

### Throw $l_{0,2}$

The throw is specified at a terminal velocity of 0.2 m/s.



### Sound attenuation

The diffuser's sound attenuation function from duct to room, including end reflection - see table below.

#### WB-1 Back connection

A x B mm	Centre frequency Hz							
	63	125	250	500	1K	2K	4K	8K
300 - 100	25	18	14	7	9	10	8	11
400 - 150	21	20	7	6	9	7	6	8
500 - 150	19	19	7	8	7	9	9	10
500 - 200	18	16	5	10	8	13	10	11
500 - 300	15	12	3	12	8	11	9	10

#### WB-2 Side connection

A x B mm	Centre frequency Hz							
	63	125	250	500	1K	2K	4K	8K
300 - 100	26	17	11	7	9	12	10	11
400 - 150	21	17	4	9	7	11	10	10
500 - 150	19	18	5	8	7	9	9	10
500 - 200	18	13	5	8	10	11	12	13
500 - 300	15	10	5	6	11	12	11	10

#### VBA

Size	Centre frequency Hz							
	63	125	250	500	1K	2K	4K	8K
300x100	23	19	11	10	8	12	10	12
400x150	14	10	8	10	11	12	10	12
500x150	15	11	9	8	8	11	10	10
500x200	13	10	9	8	8	9	10	11

# Wall diffuser

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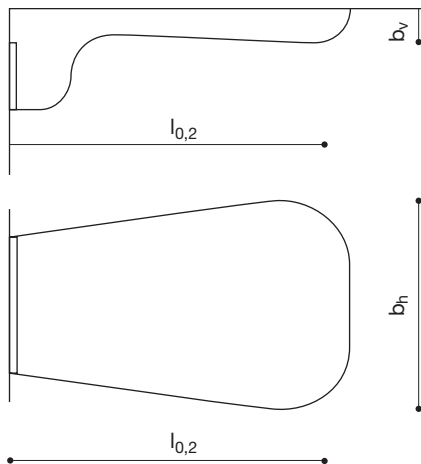
## Technical data

### Air jet dispersal

$l_b$  = Distance from the diffuser to the point where there is maximum dispersal.

$b_v$  = Depth of the air jet on a vertical plane.

$b_h$  = Width of the air jet on a horizontal plane.

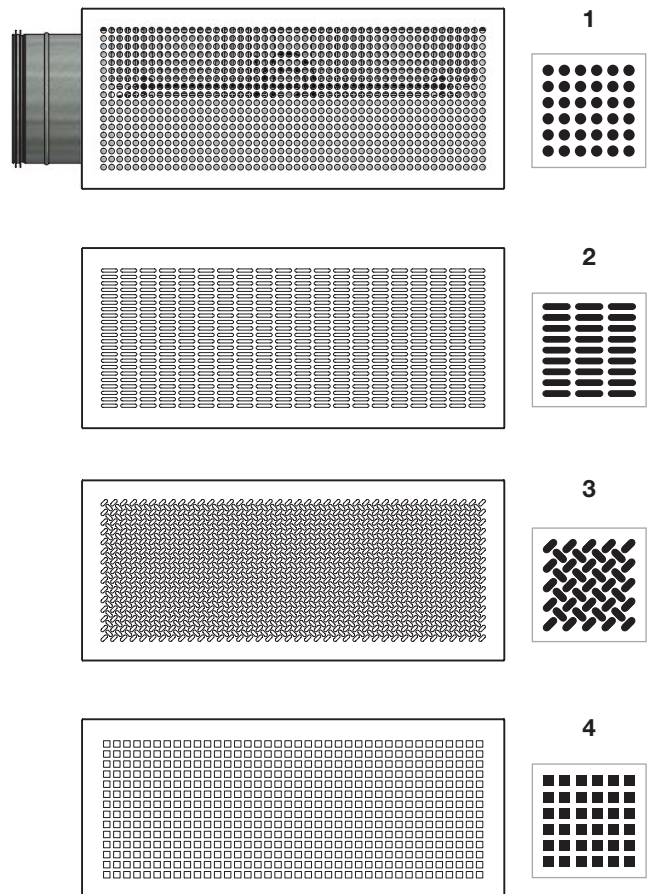


$l_{0,2}$ : Diagram value

$b_v$ :  $0.05 \times l_{0,2}$

$b_h$ :  $0.7 \times l_{0,2}$

### Pattern 1 - 4



### WB Damper



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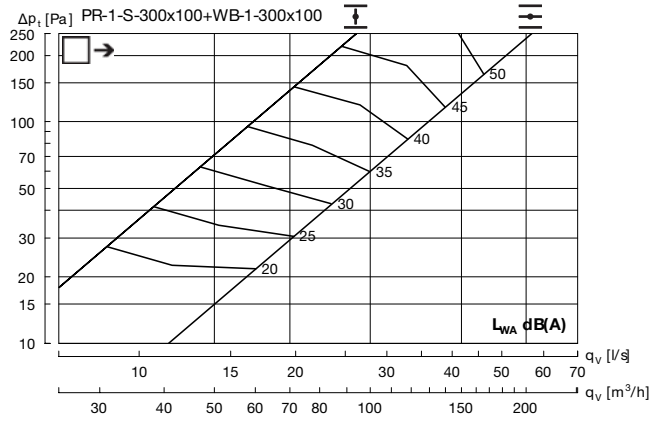
17

18

# Wall diffuser

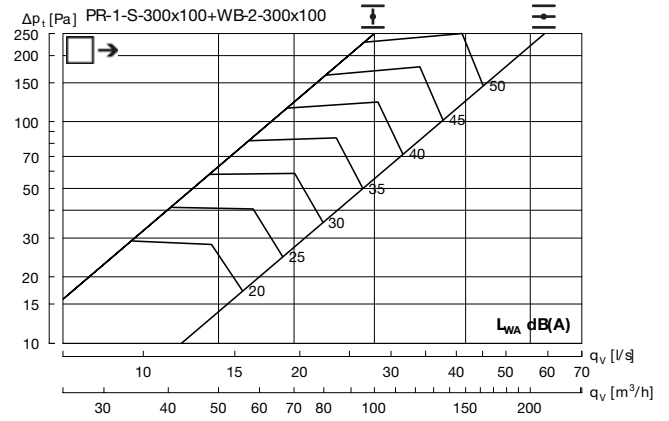
# PR1

## WB 1 - back connection

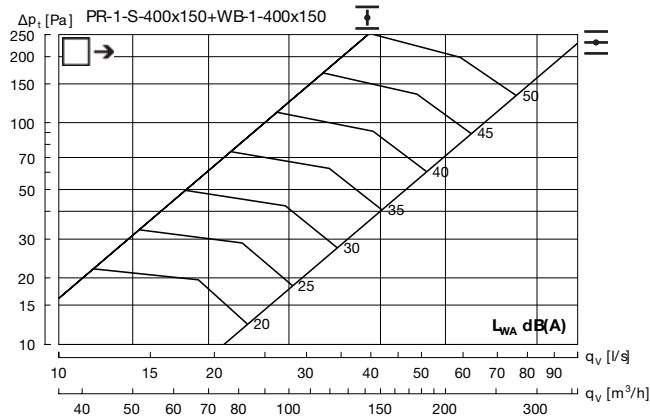


Hz	63	125	250	500	1K	2K	4K	8K
$K_{ok}$	0	-4	1	-1	-5	-14	-20	-25

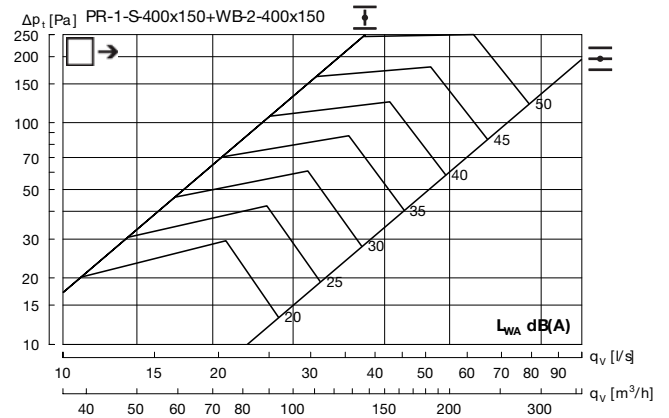
## WB 2 - side connection



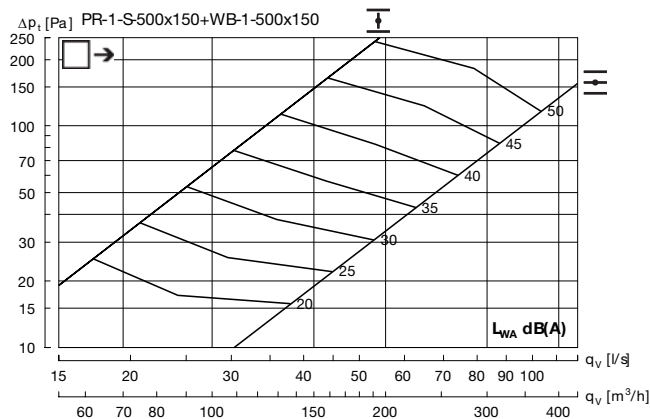
Hz	63	125	250	500	1K	2K	4K	8K
$K_{ok}$	3	-1	4	-2	-6	-17	-22	-22



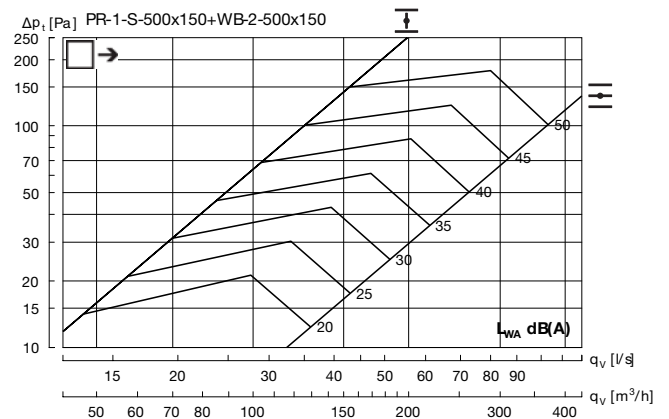
Hz	63	125	250	500	1K	2K	4K	8K
$K_{ok}$	7	-2	1	0	-6	-15	-20	-26



Hz	63	125	250	500	1K	2K	4K	8K
$K_{ok}$	-2	-1	1	-2	-3	-14	-20	-26



Hz	63	125	250	500	1K	2K	4K	8K
$K_{ok}$	3	-1	2	0	-7	-16	-23	-29

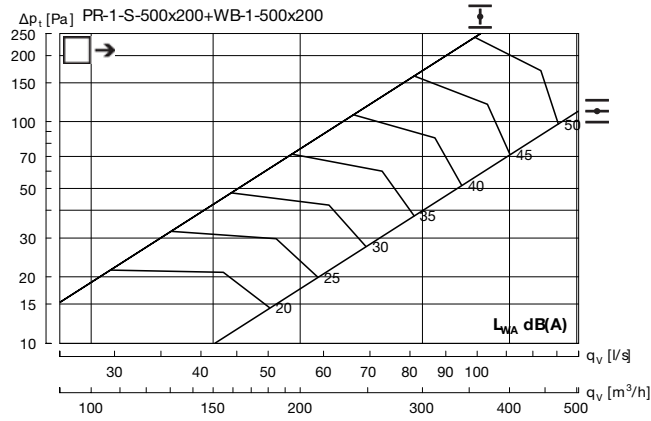


Hz	63	125	250	500	1K	2K	4K	8K
$K_{ok}$	8	-1	1	-1	-4	-15	-24	-32

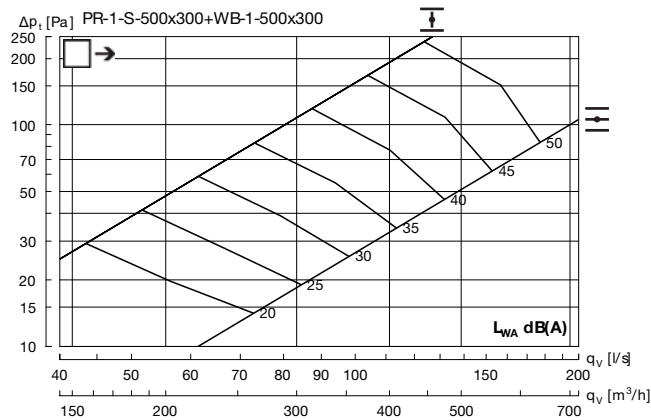
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## WB 1 - back connection

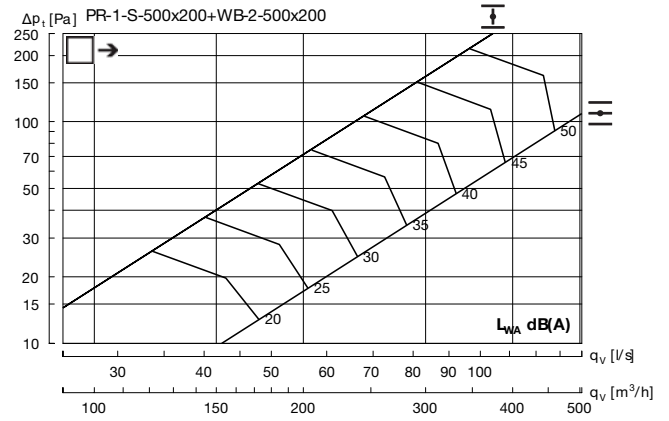


Hz	63	125	250	500	1K	2K	4K	8K
$K_{ok}$	0	-1	2	0	-6	-18	-23	-32

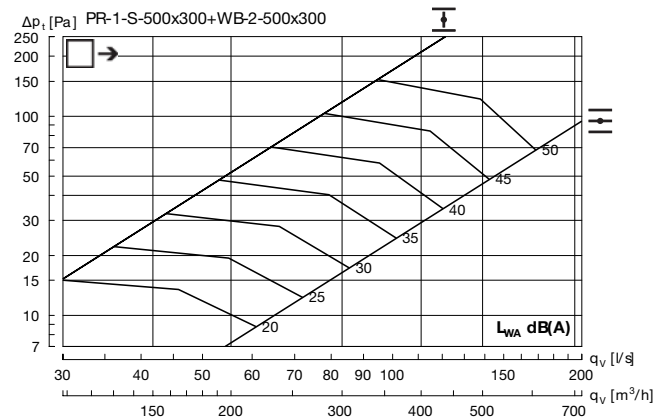


Hz	63	125	250	500	1K	2K	4K	8K
$K_{ok}$	6	2	3	0	-7	-16	-22	-30

## WB 2 - side connection



Hz	63	125	250	500	1K	2K	4K	8K
$K_{ok}$	-1	2	2	0	-6	-18	-23	-31



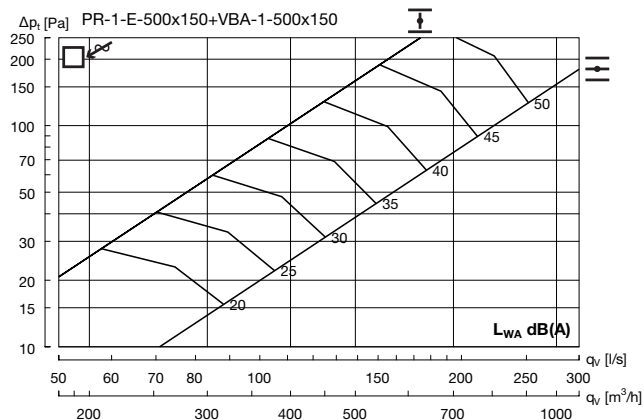
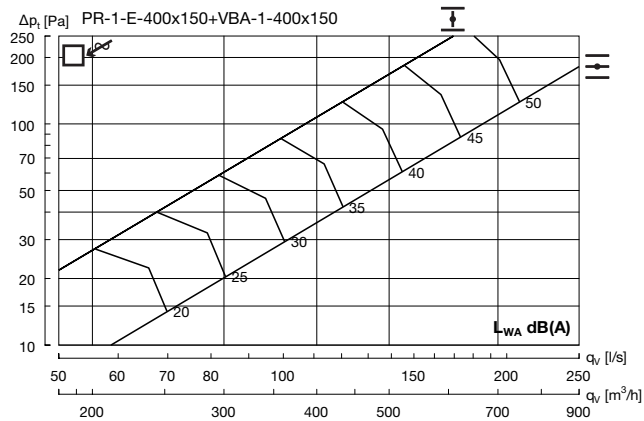
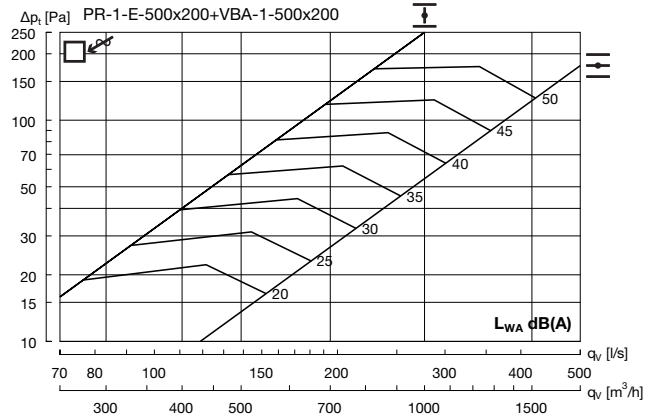
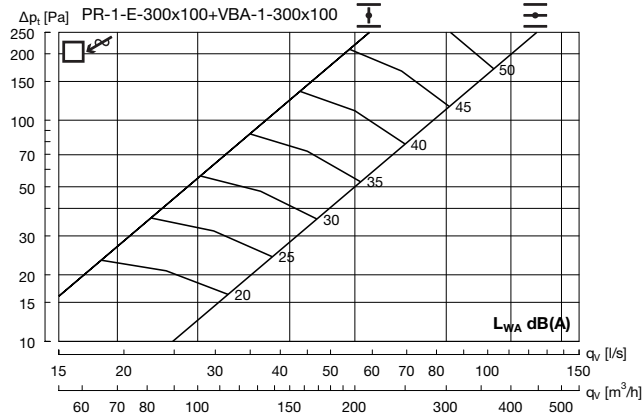
Hz	63	125	250	500	1K	2K	4K	8K
$K_{ok}$	1	2	-1	0	-4	-17	-26	-35

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## VBA exhaust



### Correction sound

Correction values for conversion of diagram data for connection from the side or top – see table below.

	PR + VBA-2 side	PR + VBA-4 Top
Open damper	+2 dB	+4 dB
50% Open damper	+1 dB	+1 dB
Closed damper	0 dB	0 dB