Ceiling diffusers

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Ceiling diffusers

Formo
Aesthetic design

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Integra
Integrated design

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Lindab Formo

a series of architectuallly designed diffusers

PCA, Terminal 3 - Copenhagen Airport

Lindab Formo

Mixed ventilation is the most used principle of ventilation there is. Mixed ventilation is typically used in offices and similar rooms, where you wish to maintain low velocities in the occupied zone as well as low temperature gradients from floor to ceiling. The best results with mixed ventilation is obtained by spreading the air over the entire ceiling area, so that the velocity can subside as much as possible before reaching the occupied zone. There is a large selection of ceiling diffusers in different designs and with different functions, which can be the used depending on the room's dimensions.

Functionality

Formo mixed ventilation diffusers are known by the diffusers being suspended from the ceiling with a single slot around the diffusers. The diffusers are offered in circular, or square designs with perforated or plain front plates. The diffusers have a very high capacity and are available with several different types of accessories. The circular diffusers are normally cut directly into the ceiling when mounted, but can by using tileplates be adapted for the most common 600x600 mm ceiling systems. On the next few pages, is illustrated a combinatic overview which will pro vide for a good insigh to the series.

PCA, ceiling diffuser

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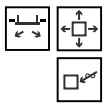
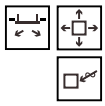
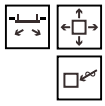
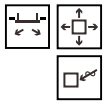
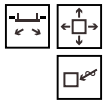
Design

See Comfort and design

Accessories

Details, see productpages

Product	Ventilations - principle	Supp./Exhau.	Size	El. - motor	Bracket (DKZ/DDZ/DCZ)	Module pl. (LM)	1, 2, 3 way (DAZ)	Damper (DRZ/CAZ)	MBB box (MBB)
Perforated - square			mm						
PKA			125 160 200 250 315 400	●	●	●	●	●	●
Perforated - circular			mm						
PCA			100 125 160 200 250 315 400	●	●	●	●	●	●
Plain - square			mm						
LKA			125 160 200 250 315 400	●	●	●	●	●	●
Plain - circular			mm						
LCA			100 125 160 200 250 315 400	●	●	●	●	●	●
Plain - circular			mm						
CRL			100 125 160 200 250 315 400		●			●	●

Electrical motor: 

See VAV chapter for further documentation.

- ● 1. Product and tech. data depicted in catalogue.
- ○ 2. Combination possible. Tech. data depicted in catalogue.
- ● 3. Combination possible. Tech. data not in catalogue.
- 4. If space is empty, combination is not possible.

Example of order Diffuser + MBB box

PCA	160	+	MBB	125	160	S

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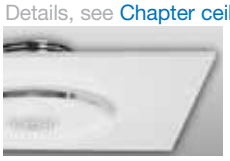
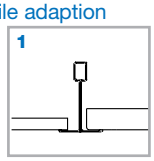
Ceiling tile adaption

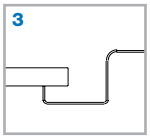
Details, see Chapter ceiling tile adaption

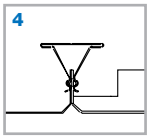


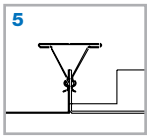
Product

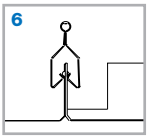
Size

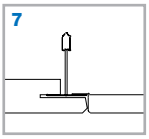












Ceiling types		Danotile T24/T15 Ecophon T24 Rockfon A24.	Permanent ceiling	Dampa Clip-In bevelled edge	Dampa Clip-In square edge	Luxalon SQ Clip-In	Danotile Contur Ecophon D Rockfon D-XL
Perforated - square	**mm**	F: 595 mm	A x A mm	F: 600 mm	F: 600 mm	F: 600 mm	F: 599 mm
PKA	**125**	●	Standard	●	●	●	●
	160	●	Standard	●	●	●	●
	200	●	Standard	●	●	●	●
	250	●	Standard	●	●	●	●
	315	Standard *					
	400	Standard *					
Perforated - circular	**mm**	F: 595 mm	ØD mm	F: 600 mm	F: 600 mm	F: 600 mm	F: 599 mm
PCA	**100**	●	Standard	●	●	●	●
	125	●	Standard	●	●	●	●
	160	●	Standard	●	●	●	●
	200	●	Standard	●	●	●	●
	250	●	Standard	●	●	●	●
	315	●	Standard	●	●	●	●
	400	●	Standard	●	●	●	●
Plain - square	**mm**	F: 595 mm	A x A mm	F: 600 mm	F: 600 mm	F: 600 mm	F: 599 mm
LKA	**125**	●	Standard	●	●	●	●
	160	●	Standard	●	●	●	●
	200	●	Standard	●	●	●	●
	250	●	Standard	●	●	●	●
	315	Standard *					
	400	Standard *					
Plain - circular	**mm**	F: 595 mm	ØD mm	F: 600 mm	F: 600 mm	F: 600 mm	F: 599 mm
LCA	**100**	●	Standard	●	●	●	●
	125	●	Standard	●	●	●	●
	160	●	Standard	●	●	●	●
	200	●	Standard	●	●	●	●
	250	●	Standard	●	●	●	●
	315	●	Standard	●	●	●	●
	400	●	Standard	●	●	●	●
Plain - circular	**mm**	F: 595 mm	ØA mm	F: 600 mm	F: 600 mm	F: 600 mm	F: 599 mm
CRL	**100**		Standard				
	125		Standard				
	160		Standard				
	200		Standard				
	250		Standard				
	315		Standard				
	400		Standard				

* In other ceiling systems the overpart of the diffuser is adapted to the ceiling. No seperate Modulplatte.

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- ● 3. Combination possible. Tech. data not in catalogue.
- 4. If space is empty, combination is not possible.

Example of order Moduleplate

LM	1	PCA	160

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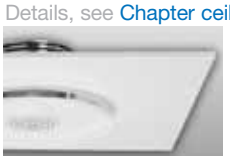
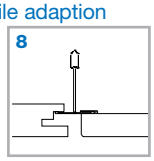
Ceiling tile adaption

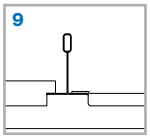
Details, see Chapter ceiling tile adaption

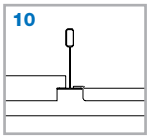


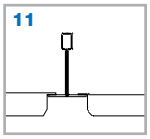
Product

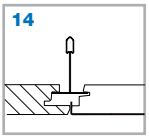
Size

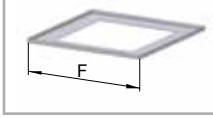
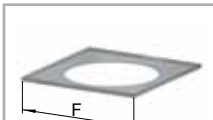










Ceiling types		Ecophon Focus DG	Rockfon E10 24 Ecophon -E / T24	Rockfon E10 15 Ecophon - E / T15	Danotile Markant	Ecophon Focus edge DS
Perforated - square	**mm**	F: 592mm	F: 575mm	F: 584 mm	F: 575 mm	F: 599 mm
PKA 	**125** ● **160** ● **200** ● **250** ● **315** ● **400** ●	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●
Perforated - circular	**mm**	F: 592mm	F: 575mm	F: 584 mm	F: 575 mm	F: 599 mm
PCA 	**100** ● **125** ● **160** ● **200** ● **250** ● **315** ● **400** ●	● ● ● ● ● ● ●	● ● ● ● ● ● ●	● ● ● ● ● ● ●	● ● ● ● ● ● ●	● ● ● ● ● ● ●
Plain - square	**mm**	F: 592mm	F: 575mm	F: 584 mm	F: 575 mm	F: 599 mm
LKA 	**125** ● **160** ● **200** ● **250** ● **315** ● **400** ●	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●
Plain - circular	**mm**	F: 592mm	F: 575mm	F: 584 mm	F: 575 mm	F: 599 mm
LCA 	**100** ● **125** ● **160** ● **200** ● **250** ● **315** ● **400** ●	● ● ● ● ● ● ●	● ● ● ● ● ● ●	● ● ● ● ● ● ●	● ● ● ● ● ● ●	● ● ● ● ● ● ●
Plain - circular	**mm**	F: 592mm	F: 575mm	F: 584 mm	F: 575 mm	F: 599 mm
CRL 	**100** **125** **160** **200** **250** **315** **400**					

- ● 1. Product and tech. data depicted in catalogue.
- ○ 2. Combination possible. Tech. data depicted in catalogue.
- ● 3. Combination possible. Tech. data not in catalogue.
- 4. If space is empty, combination is not possible.

Perforated diffuser PKA

Description

PKA is a square diffuser with perforated face plate. PKA can be used for both supply and exhaust air. PKA is suitable for horizontal supply of cooled air and can be equipped with accessories of various types in order to achieve optimal function. Installing a PKA diffuser in a plenum box type MBB can help to achieve a stable airflow to the diffuser as well as realise the potential for individual ajustment.

- Suitable for both supply and exhaust air
- Suitable for horizontal supply of cooled air
- Option of 1, 2 and 3-way supply air

Maintenance

The face plate can be removed to enable cleaning of internal parts or to gain access to the duct or box. The visible parts of the diffuser can be wiped with a damp cloth.

Order code

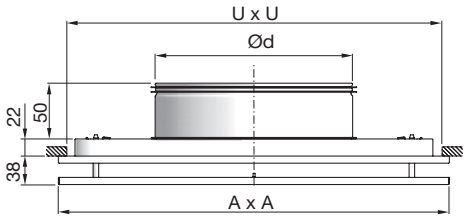
Product **PKA** **aaa**

Type
PKA

Connection dim. Ød
Ød 125-400

Example: PKA-200

Dimensions



PKA Ød mm	A mm	U * mm	Free area A m^2	Weight kg
125	235	200	0,018	1,10
160	295	260	0,023	1,80
200	395	360	0,03	2,80
250	495	460	0,043	4,20
315	595	560	0,057	5,70
400	595	560	0,075	5,70

* U x U = Ceiling grid opening

Materials and finish

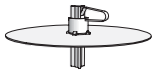
Material:	Galvanised steel
Standard finish:	Powder-coated
Standard colour:	White RAL 9010, gloss 30

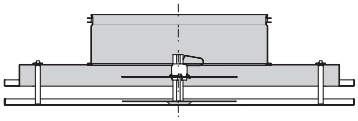
The diffuser is available in other colours. Please contact Lindab's sales department for further information.

Perforated diffuser PKA

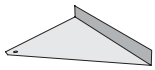
Accessories

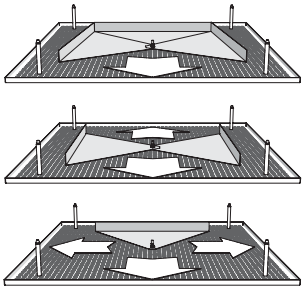
DRZ - Balancing damper



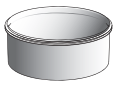


Blending profiles (set)

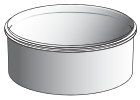


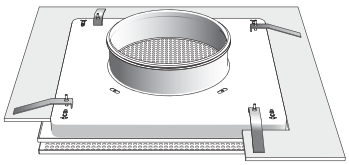


MBZ - Extension piece



DKZ - Mounting brackets (set)





Order code - accessoreies

Product	aaa	bbb
Type		
Size		

Example: DRZ-200

LM - Module plate

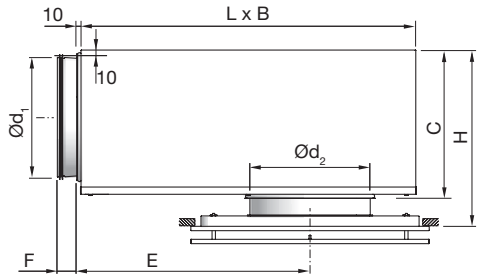
Order code - module plate

Product	LM	a	PKA	ccc
Type				
Ceiling system				
Diffuser				
Size				

Example: LM-1-PKA-200
Ceiling system - see introductory summary.

MBB - Plenum box

PKA + MBB



PKA + MBB							
duct	PKA	B	C	E	F	H*	L
Ød1 mm	Ød2 mm	mm	mm	mm	mm	mm	mm
100	125	260	159	216	50	180 - 220	310
100	160	260	159	216	50	180 - 220	310
125	125	310	184	262	50	205 - 245	376
125	160	310	184	262	50	205 - 245	376
125	200	310	184	262	50	205 - 245	376
160	160	380	220	323	50	239 - 279	459
160	200	380	220	323	50	239 - 279	459
160	250	380	220	323	50	239 - 279	459
200	200	460	259	396	70	280 - 320	565
200	250	460	259	396	70	280 - 320	565
200	315	460	259	396	70	280 - 320	565
250	250	540	309	486	70	330 - 370	698
250	315	540	309	486	70	330 - 370	698
250	400	540	309	486	70	330 - 370	698
315	315	540	373	646	70	395 - 435	858
315	400	540	373	646	70	395 - 435	858

* Using accessory MBZ the H dimension will increase:
$Ød_2$ = 125 - 200 mm => H +40 mm
$Ød_2$ = 250 - 315 mm => H +60 mm
$Ød_2$ = 400 mm => H +80 mm

Order code

Product	MBB	aaa	bbb	c
Type				
MBB				
Duct connection $Ød_1$				
Ø100-315				
Diffuser dimension $Ød_2$				
Ø125-400				
Function				
S = Supply air				
E = Exhaust				

Example: PKA-200+MBB-160-200-S

Perforated diffuser PKA

Technical data

Capacity

Air flow q_v [l/s] and [m³/h], total pressure Δp_t [Pa], throw $l_{0.2}$ [m] and sound power 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 $L_{WA}+K_{ok}$. K_{ok} values are specified in charts beneath the diagrams on the following pages.

Quick selection, supply air

PKA + MBB		$\Delta p_t \geq 50$ Pa		$\Delta p_t \geq 50$ Pa	
duct	PKA	30 dB(A)		35 dB(A)	
$Ød_1$	$Ød_2$	l/s	m³/h	l/s	m³/h
100	125	33	119	39	140
100	160	39	140	47	169
125	125	40	144	48	173
125	160	51	184	61	220
125	200	58	209	70	252
160	160	59	212	70	252
160	200	67	241	84	302
160	250	77	277	99	356
200	200	83	299	100	360
200	250	96	346	118	425
200	315	112	403	139	500
250	250	118	425	139	500
250	315	133	479	163	587
250	400	128	461	174	626
315	315	145	522	173	623
315	400	173	623	209	752

Sound attenuation

Sound attenuation of the diffuser ΔL from duct to room, including end reflection, see table below.

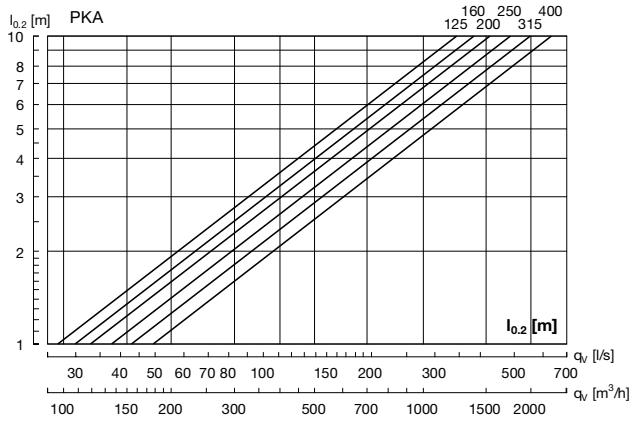
PKA + MBB									
duct	PKA	Centre frequency Hz							
$Ød_1$	$Ød_2$	63	125	250	500	1K	2K	4K	8K
100	125	19	16	7	19	18	18	18	21
100	160	21	16	5	15	17	18	16	19
125	125	18	13	9	20	13	19	18	19
125	160	12	13	8	19	13	16	17	19
125	200	16	11	5	16	13	15	15	17
160	160	17	17	11	19	18	17	20	20
160	200	14	14	7	21	15	16	18	19
160	250	15	15	5	17	13	15	16	18
200	200	15	10	6	16	17	15	19	18
200	250	12	9	5	14	17	15	17	17
200	315	12	7	4	11	15	14	16	15
250	250	14	8	8	14	16	17	17	18
250	315	12	6	6	15	15	15	16	17
250	400	13	5	4	13	14	14	15	15
315	315	7	9	8	14	17	16	17	21
315	400	7	8	8	12	16	16	16	18

Balancing

Balancing data is contained in a separate brochure.

Throw $l_{0.2}$

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

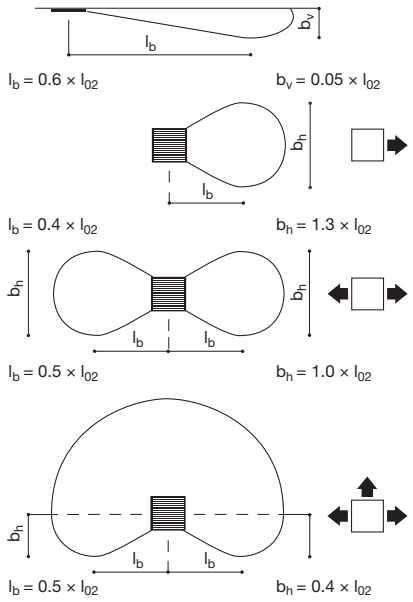


Correction throw $l_{0.2}$

PKA Ød	1 - ways	2 - ways	3 - ways
125	2.6	1.8	1.4
160	2.5	1.7	1.3
200	2.4	1.7	1.3
250	2.3	1.7	1.3
315	2.2	1.7	1.2
400	2.3	1.7	1.2

Air jet distribution

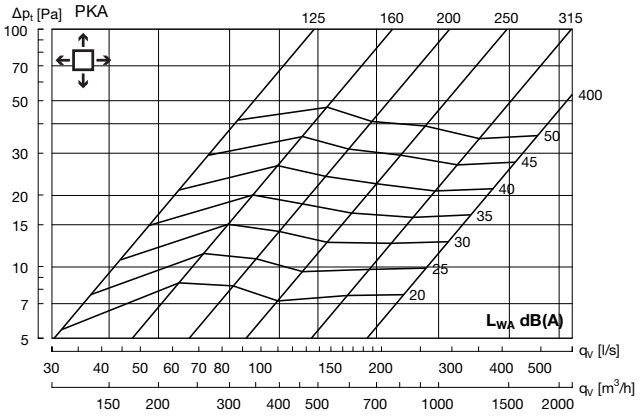
l_b = Distance from the diffuser to the point where there is maximum dispersal.
b_v = Depth of the air jet on a vertical plane.
b_h = Width of the air jet on a horizontal plane.



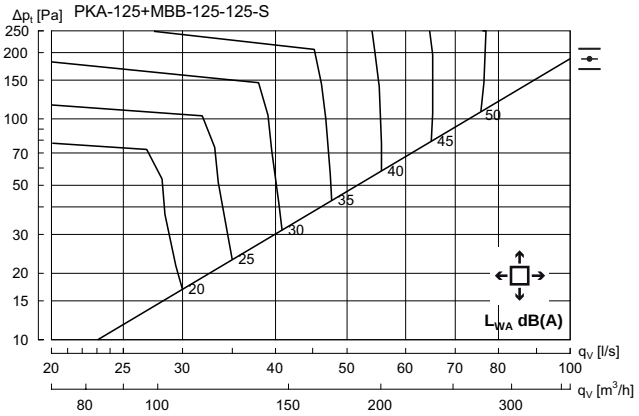
Perforated diffuser PKA

Technical data

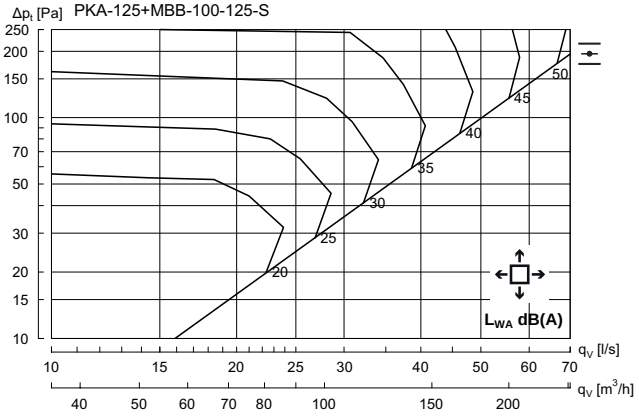
PKA without box - Supply air



PKA 125 + MBB - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	9	5	-1	-4	-3	-11	-20	-26

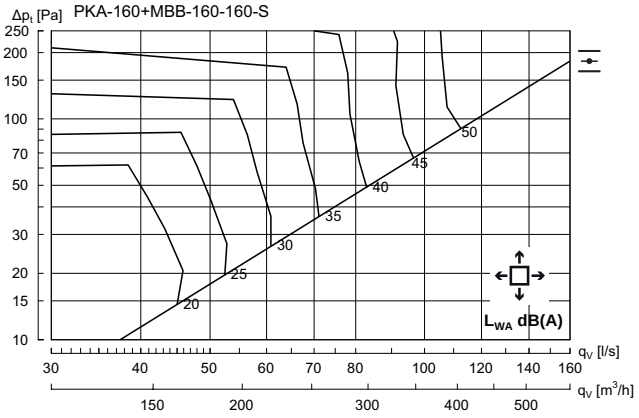


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	11	7	3	-5	-5	-11	-18	-25

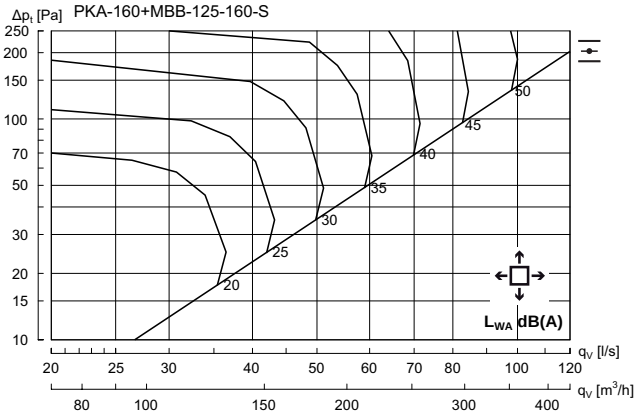
Perforated diffuser PKA

Technical data

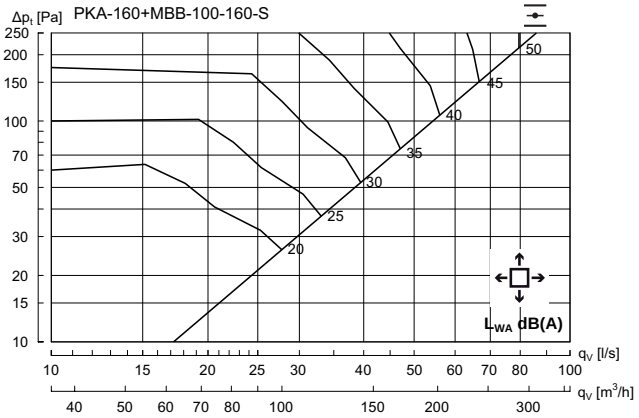
PKA 160 + MBB - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	8	5	-2	-4	-3	-11	-21	-29

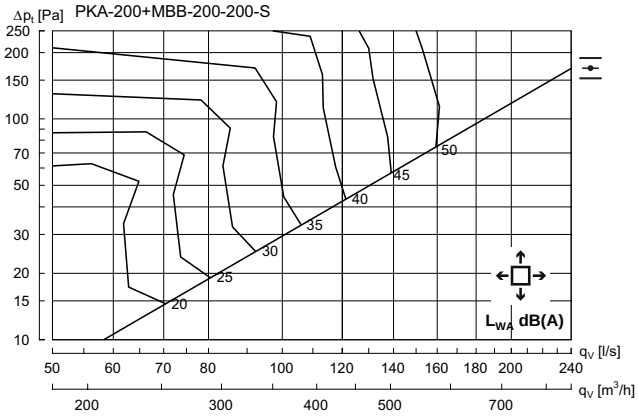


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	9	5	1	-4	-4	-10	-17	-25

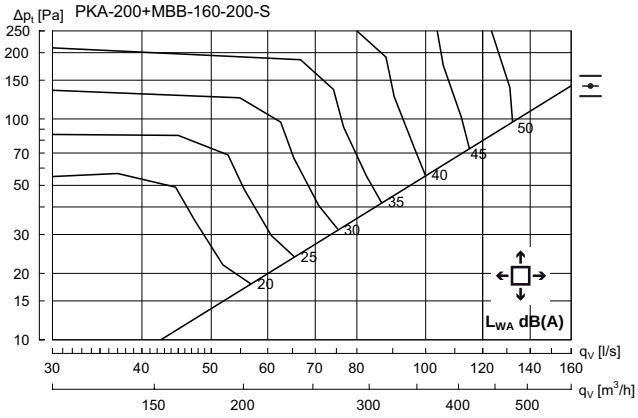


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	9	4	1	-3	-5	-10	-15	-19

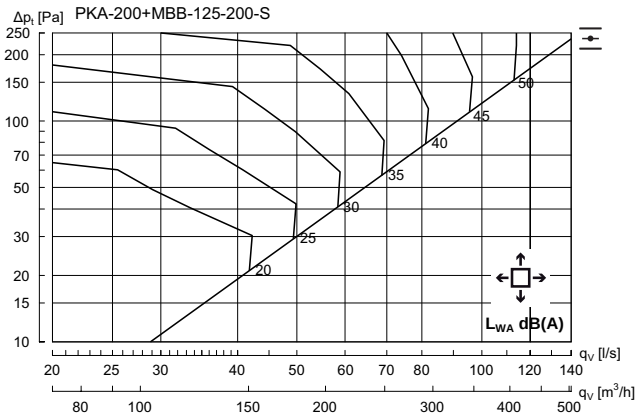
PKA 200 + MBB - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	11	5	-3	-3	-3	-11	-22	-29



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	10	5	-2	-4	-3	-10	-20	-26

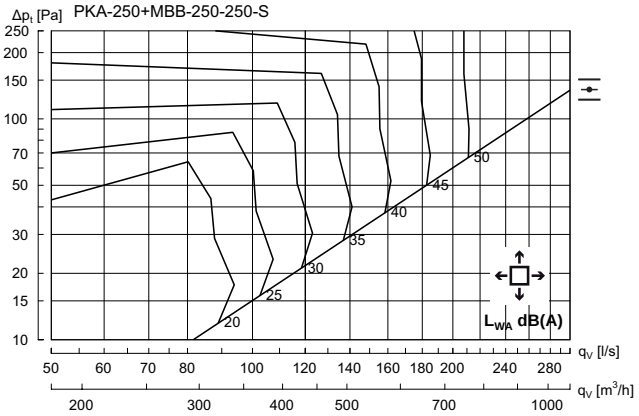


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	10	5	1	-4	-5	-10	-15	-22

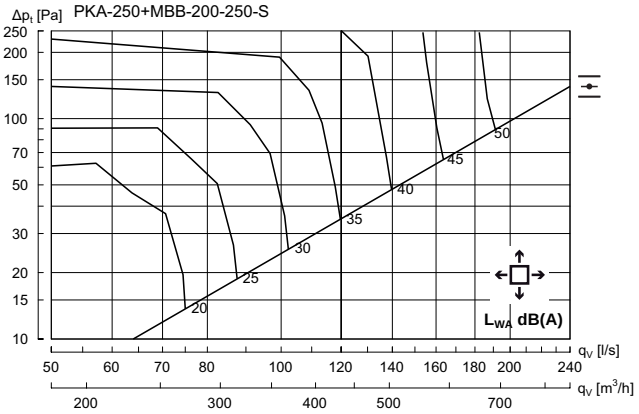
Perforated diffuser PKA

Technical data

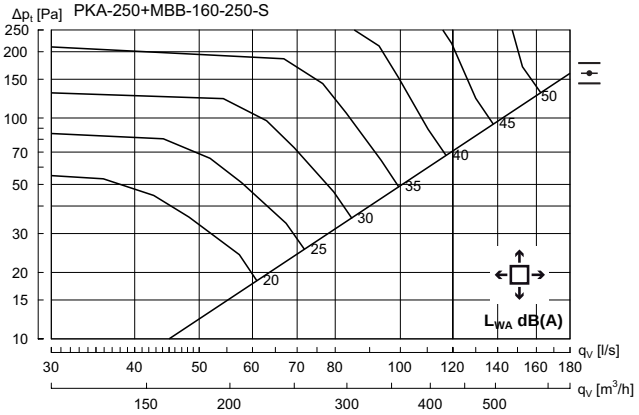
PKA 250 + MBB - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	11	3	-4	-3	-3	-12	-22	-30

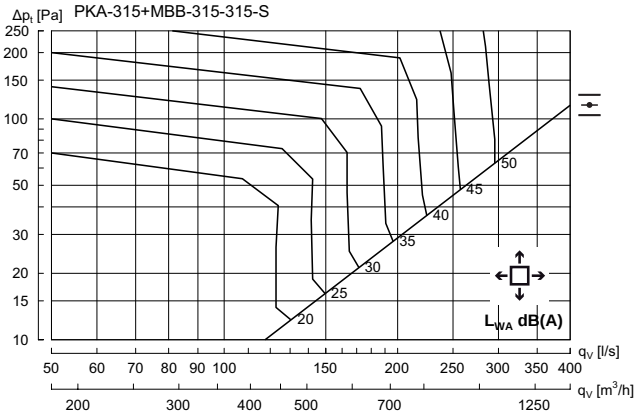


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	10	5	-2	-3	-3	-11	-20	-28

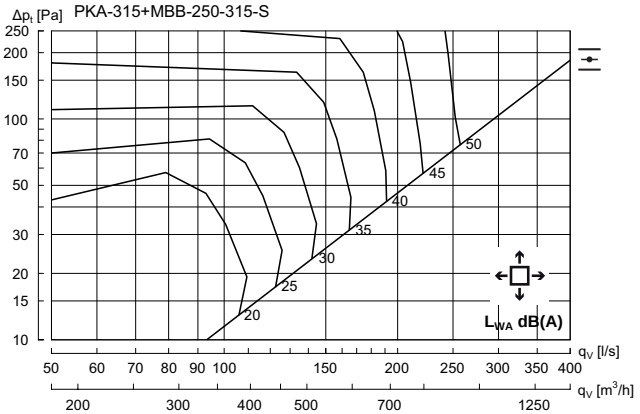


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	8	5	0	-4	-4	-10	-17	-23

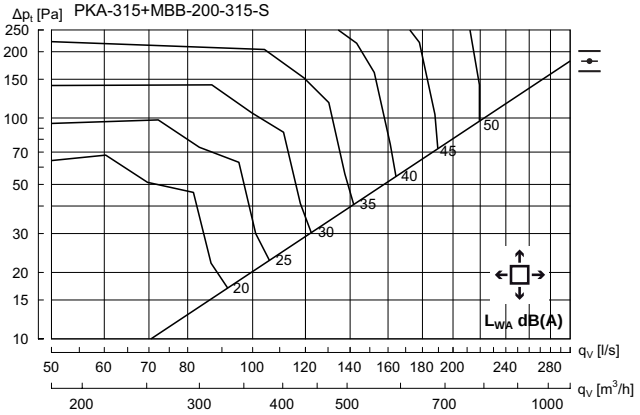
PKA 315 + MBB - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	12	2	-3	-2	-3	-13	-23	-33



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	11	3	-2	-3	-4	-11	-18	-27

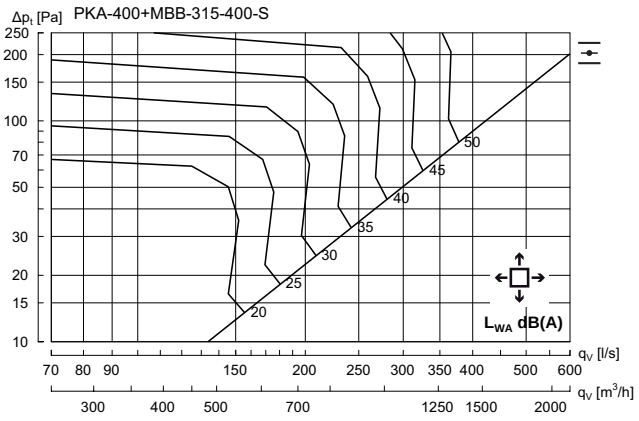


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	10	5	-1	-3	-4	-11	-19	-25

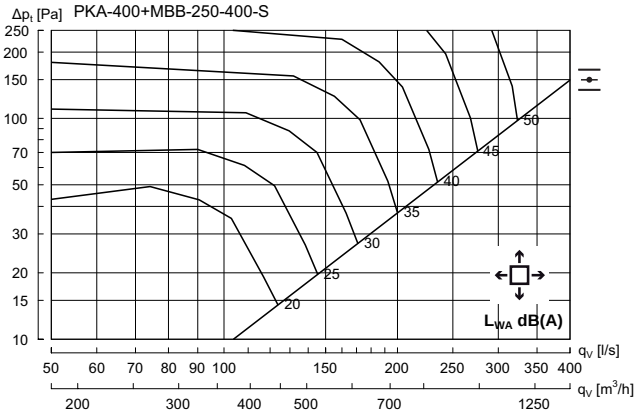
Perforated diffuser PKA

Technical data

PKA 400 + MBB - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	14	2	0	-2	-5	-13	-17	-26



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	10	4	0	-2	-4	-11	-17	-24

PKA + MBB - Supply air

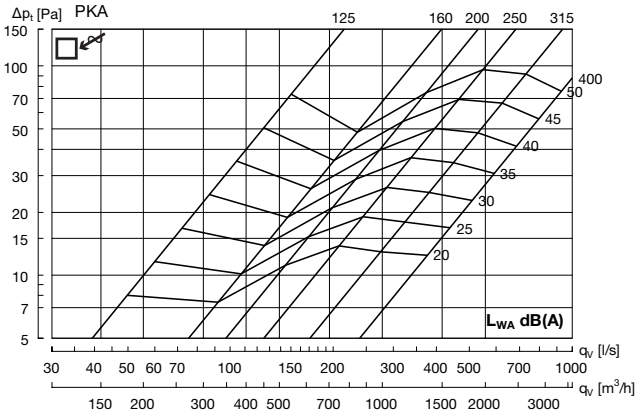
Correction sound power level (L_{WA}) and pressure loss (Δp_t)

PKA + MBB duct $Ød_1$	PKA $Ød_2$	1 - ways L_{WA}	1 - ways Δp_t	2 - ways L_{WA}	2 - ways Δp_t	3 - ways L_{WA}	3 - ways Δp_t
100	125	+ 10	x 1.3	+ 4	x 1.1	+ 2	x 1.05
100	160	+ 5	x 1.1	+ 2	x 1.05	+ 1	x 1
125	125	+ 10	x 1,35	+ 6	x 1,1	+ 4	x 1,05
125	160	+ 10	x 1.4	+ 4	x 1.1	+ 1	x 1
125	200	+ 4	x 1.2	+ 2	x 1.05	+ 1	x 1
160	160	+ 13	x 1.8	+ 6	x 1.3	+ 2	x 1.1
160	200	+ 16	x 1.7	+ 10	x 1.2	+ 4	x 1.05
160	250	+ 10	x 1.3	+ 6	x 1,1	+ 3	x 1
200	200	+ 17	x 2.3	+ 11	x 1.4	+ 7	x 1.1
200	250	+ 13	x 1.8	+ 6	x 1.2	+ 4	x 1.1
200	315	+ 9	x 1.5	+ 4	x 1.1	+ 0	x 1.05
250	250	+ 21	x 2.1	+ 11	x 1.4	+ 7	x 1.2
250	315	+ 19	x 1.8	+ 7	x 1.2	+ 3	x 1.1
250	400	+ 10	x 1.5	+ 6	x 1.2	+ 0	x 1
315	315	+ 21	x 2.1	+ 10	x 1.3	+ 4	x 1.1
315	400	+ 21	x 1.8	+ 8	x 1.5	+ 3	x 1.2

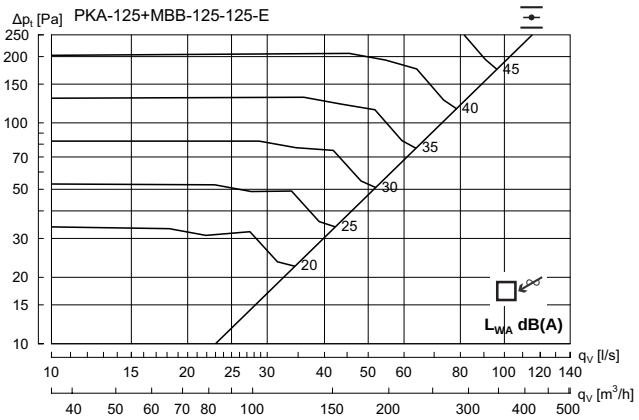
Perforated diffuser PKA

Technical data

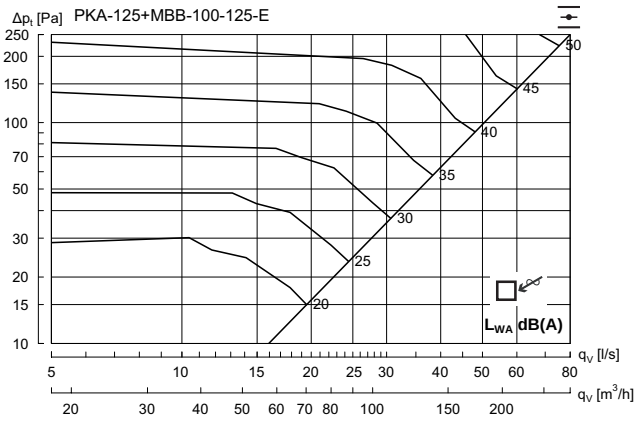
PKA without box - Exhaust air



PKA 125 + MBB - Exhaust air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	13	5	-1	-4	-4	-11	-15	-20

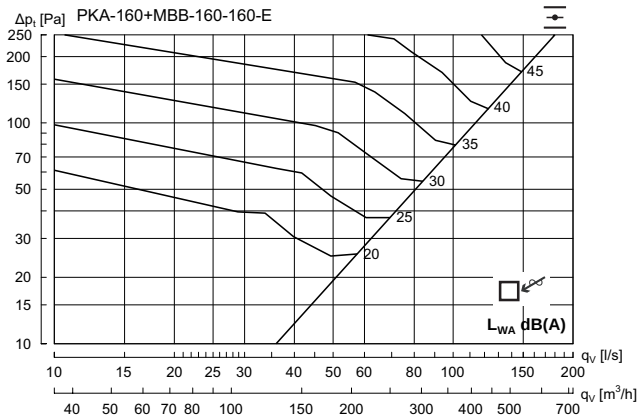


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	13	-1	3	-3	-6	-10	-16	-19

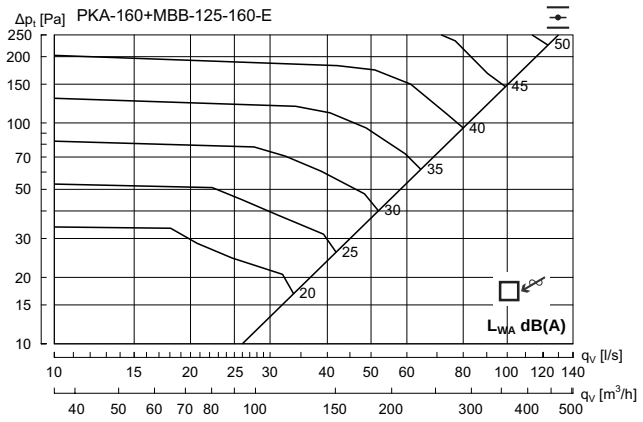
Perforated diffuser PKA

Technical data

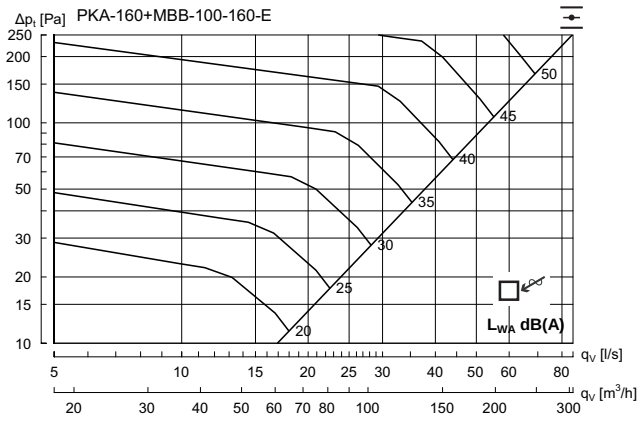
PKA 160 + MBB - Exhaust air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	16	6	-1	-5	-4	-10	-15	-19

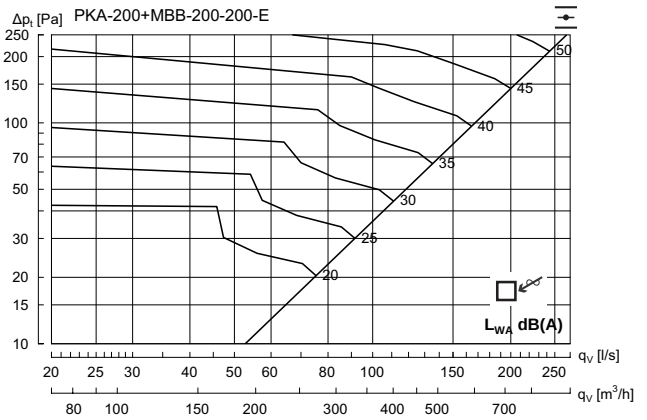


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	13	5	0	-3	-5	-11	-15	-22

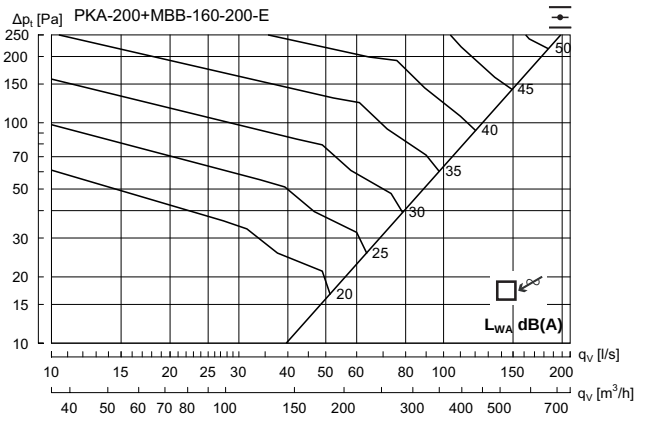


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	10	-1	5	-3	-8	-11	-18	-25

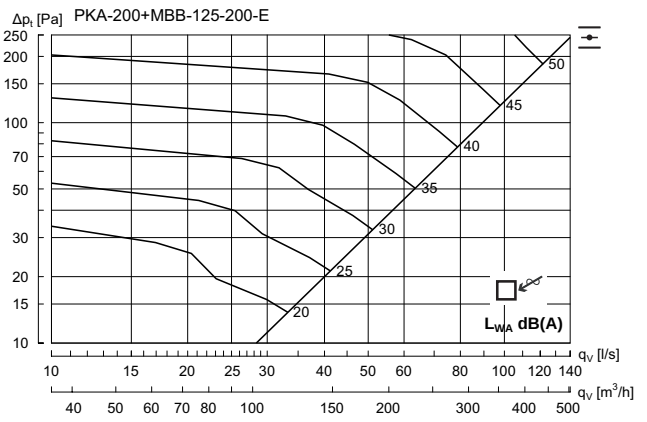
PKA 200 + MBB - Exhaust air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	15	4	-1	-4	-5	-9	-16	-25



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	15	6	-1	-5	-5	-9	-14	-20

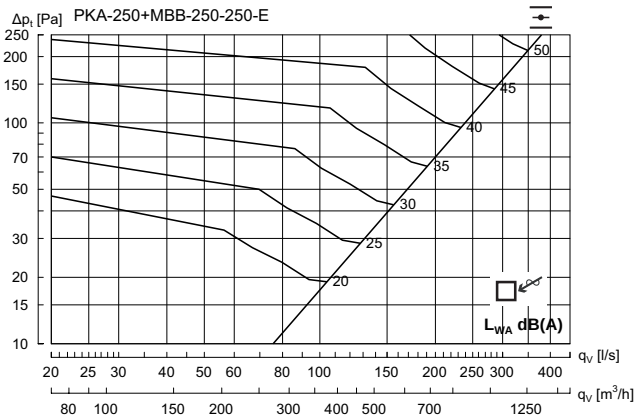


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	9	3	1	-4	-5	-10	-14	-21

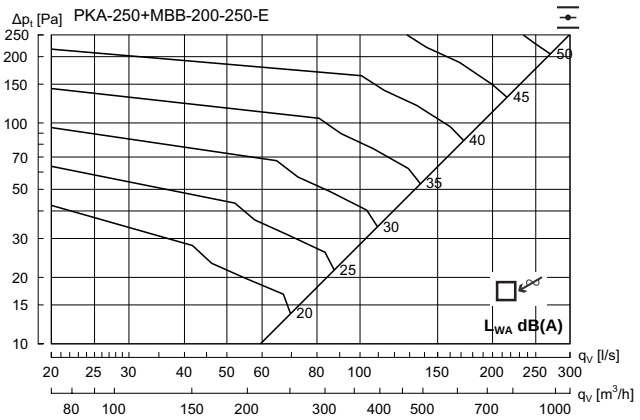
Perforated diffuser PKA

Technical data

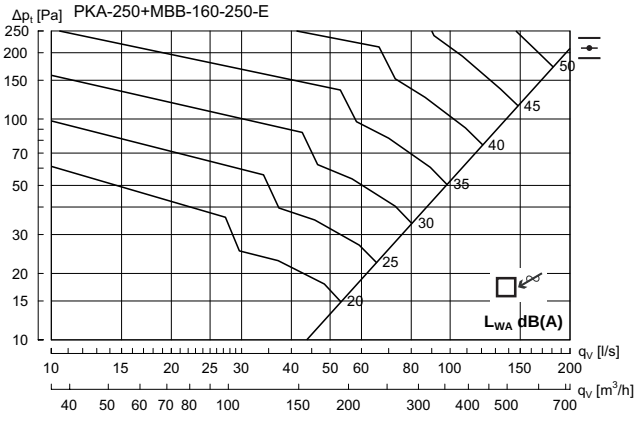
PKA 250 + MBB - Exhaust air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	10	5	2	-3	-5	-11	-16	-25

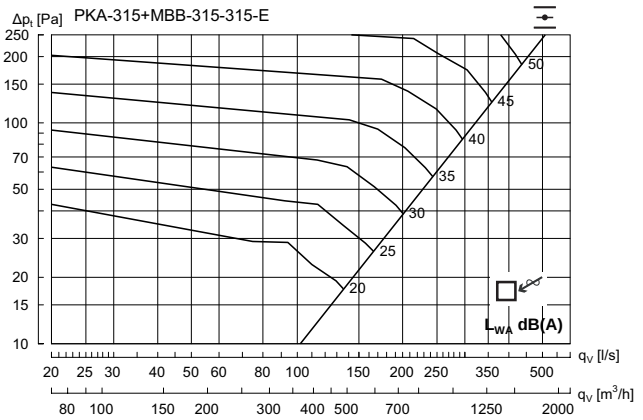


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	12	5	0	-3	-5	-10	-14	-23

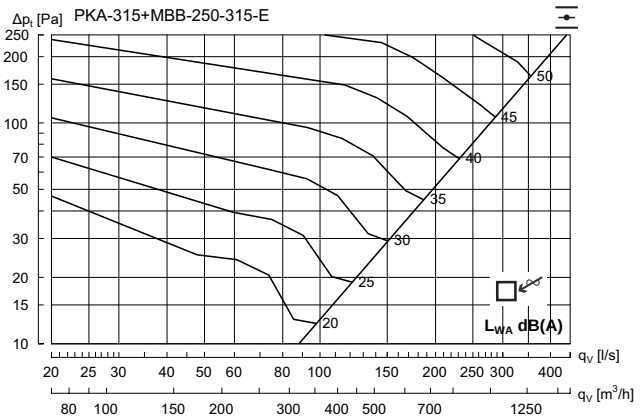


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	16	6	0	-5	-5	-9	-15	-21

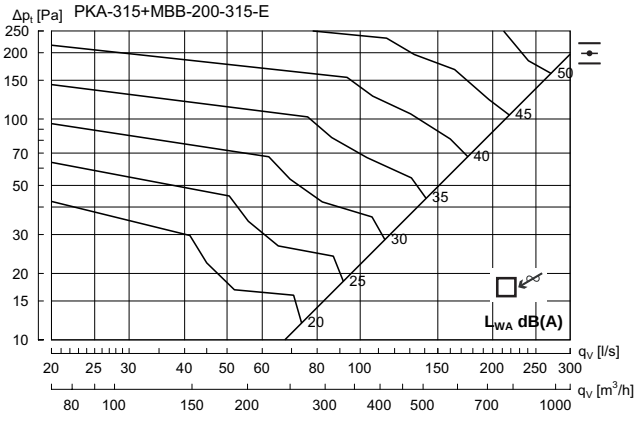
PKA 315 + MBB - Exhaust air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	13	5	3	-4	-6	-10	-16	-26



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	7	5	2	-3	-6	-10	-16	-24

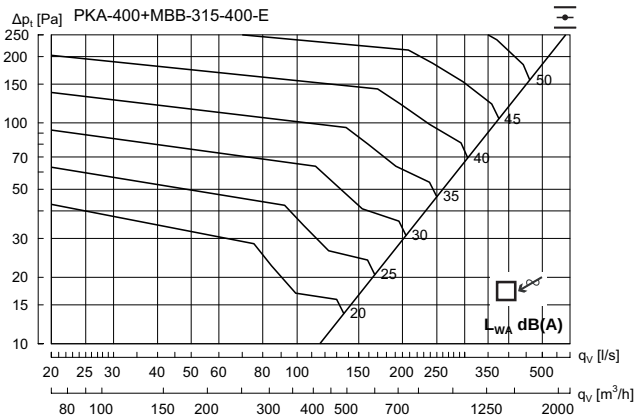


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	13	5	0	-3	-5	-9	-15	-23

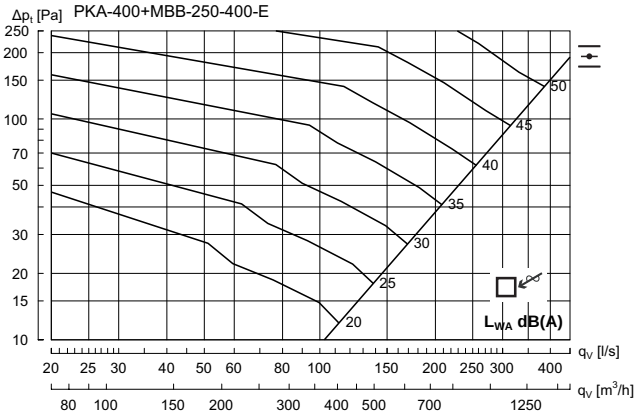
Perforated diffuser PKA

Technical data

PKA 400 + MBB - Exhaust air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	10	4	2	-3	-6	-9	-14	-25



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	10	5	2	-4	-5	-10	-15	-23

Perforated diffuser PCA

Description

PCA is a circular diffuser with perforated face plate. PCA can be used for both supply and exhaust air. PCA is suitable for horizontal supply of cooled air and can be equipped with accessories of various types in order to achieve optimal function. Installing a PCA diffuser in a plenum box type MBB can help to achieve a stable airflow to the diffuser as well as realise the potential for individual ajustment.

- Suitable for both supply and exhaust air
- Suitable for horizontal supply of cooled air
- Option of 1, 2 and 3-way supply air

Maintenance

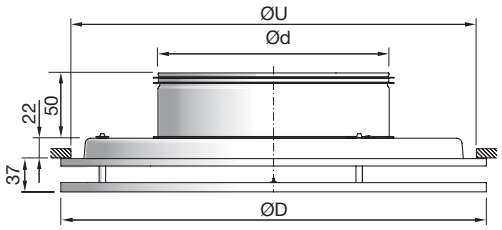
The face plate can be removed to enable cleaning of internal parts or to gain access to the duct or box. The visible parts of the diffuser can be wiped with a damp cloth.

Order code

Product	**PCA**	**aaa**
Type		
PCA		
Connection dim. Ød		
Ød 100-400		

Example: PCA-200

Dimensions



PCA Ød mm	ØD mm	ØU* mm	Free area A m^2	Weight kg
100	240	200	0.016	1,00
125	240	200	0.018	1,00
160	300	260	0.023	1,50
200	360	320	0.03	2,30
250	460	420	0.042	3,40
315	540	500	0.058	4,60
400	540	500	0.066	4,60

* ØU = Ceiling grid opening

Materials and finish

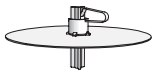
Material:	Galvanised steel
Standard finish:	Powder-coated
Standard colour:	White RAL 9010, gloss 30

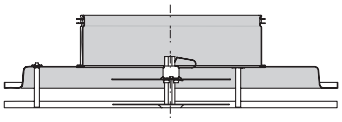
The diffuser is available in other colours. Please contact Lindab's sales department for further information.

Perforated diffuser PCA

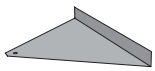
Accessories

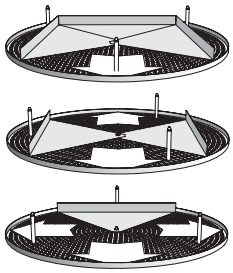
DRZ - Balancing damper



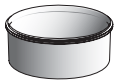


Blending profiles (set)

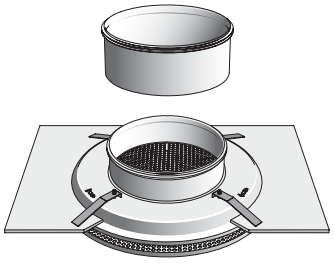




MBZ - Extension piece



DDZ - Mounting brackets (set)

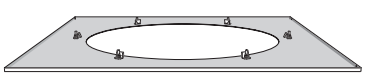


Order code - accessoreies

Product	aaa	bbb
Type		
Size		

Example: DRZ-200

LM - Module plate



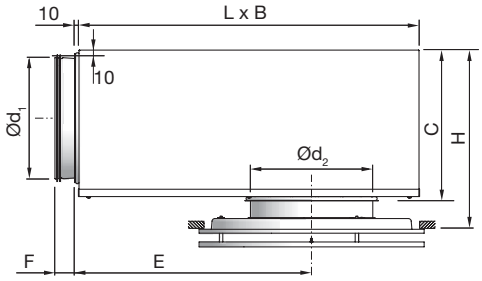
Order code - module plate

Product	LM	a	PCA	ccc
Type				
Ceiling system				
Diffuser				
Size				

Example: LM-1-PCA-200
Ceiling system - see introductory summary.

MBB - Plenum box

PCA + MBB



PCA + MBB							
duct	PCA	B	C	E	F	H*	L
Ød1 mm	Ød2 mm	mm	mm	mm	mm	mm	mm
100	100	260	159	216	50	180 - 220	310
100	125	260	159	216	50	180 - 220	310
100	160	260	159	216	50	180 - 220	310
125	125	310	184	262	50	205 - 245	376
125	160	310	184	262	50	205 - 245	376
125	200	310	184	262	50	205 - 245	376
160	160	380	220	323	50	239 - 279	459
160	200	380	220	323	50	239 - 279	459
160	250	380	220	323	50	239 - 279	459
200	200	460	259	396	70	280 - 320	565
200	250	460	259	396	70	280 - 320	565
200	315	460	259	396	70	280 - 320	565
250	250	540	309	486	70	330 - 370	698
250	315	540	309	486	70	330 - 370	698
250	400	540	309	486	70	330 - 370	698
315	315	540	373	646	70	395 - 435	858
315	400	540	373	646	70	395 - 435	858

* Using accessory MBZ the H dimension will increase:
$Ød_2$ = 100 - 200 mm => H +40 mm
$Ød_2$ = 250 - 315 mm => H +60 mm
$Ød_2$ = 400 mm => H +80 mm

Order code

Product	MBB	aaa	bbb	c
Type				
MBB				
Duct connection $Ød_1$				
Ø100-315				
Diffuser dimension $Ød_2$				
Ø100-400				
Function				
S = Supply air				
E = Exhaust				

Example: PCA-200+MBB-160-200-S

Perforated diffuser PCA

Technical data

Capacity

Air flow q_v [l/s] and [m³/h], total pressure Δp_t [Pa], throw $l_{0.2}$ [m] and sound power 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 $L_{WA}+K_{ok}$. K_{ok} values are specified in charts beneath the diagrams on the following pages.

Quick selection, supply air

PCA + MBB		$\Delta p_t \geq 50$ Pa		$\Delta p_t \geq 50$ Pa	
duct	PCA	30 dB(A)		35 dB(A)	
$Ød_1$	$Ød_2$	l/s	m³/h	l/s	m³/h
100	100	26	94	31	112
100	125	33	119	39	140
100	160	39	140	47	169
125	125	40	144	48	173
125	160	51	184	61	220
125	200	58	209	70	252
160	160	57	207	71	255
160	200	67	241	84	302
160	250	77	277	99	356
200	200	83	299	100	360
200	250	96	346	118	425
200	315	112	403	139	500
250	250	118	425	139	500
250	315	133	479	163	587
250	400	146	526	193	695
315	315	145	522	173	623
315	400	187	673	225	810

Sound attenuation

Sound attenuation of the diffuser ΔL from duct to room, including end reflection, see table below.

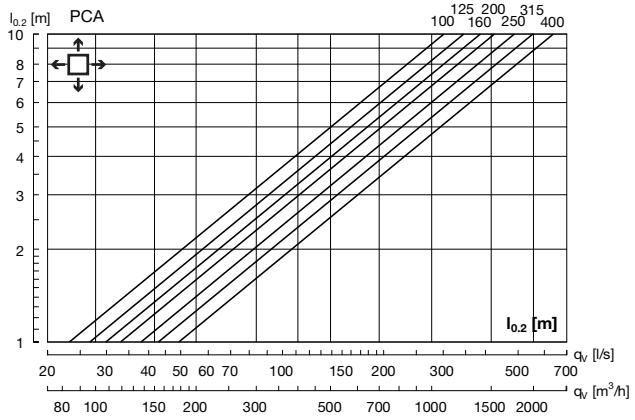
PCA + MBB		Centre frequency Hz							
duct	PCA								
$Ød_1$	$Ød_2$	63	125	250	500	1K	2K	4K	8K
100	100	18	17	8	20	19	20	19	23
100	125	19	16	7	19	18	18	18	21
100	160	21	16	5	15	17	18	16	19
125	125	18	13	9	20	13	19	18	19
125	160	12	13	8	19	13	16	17	19
125	200	16	11	5	16	13	15	15	17
160	160	17	17	11	19	18	17	20	20
160	200	14	14	7	21	15	16	18	19
160	250	15	15	5	17	13	15	16	18
200	200	15	10	6	16	17	15	19	18
200	250	12	9	5	14	17	15	17	17
200	315	12	7	4	11	15	14	16	15
250	250	14	8	8	14	16	17	17	18
250	315	12	6	6	15	15	15	16	17
250	400	13	5	4	13	14	14	15	15
315	315	7	9	8	14	17	16	17	21
315	400	7	8	8	12	16	16	16	18

Balancing

Balancing data is contained in a separate brochure.

Throw $l_{0.2}$

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

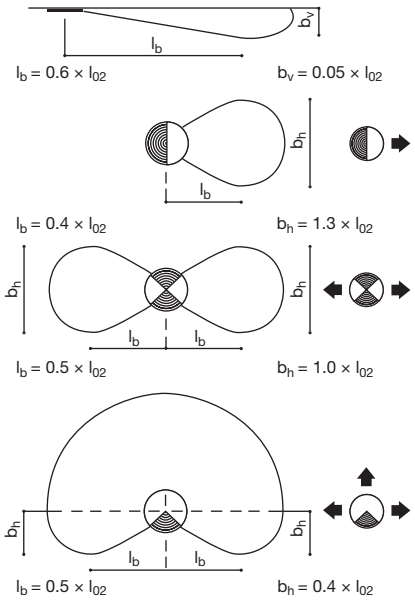


Correction throw $L_{0.2}$

PCA Ød	1 - ways	2 - ways	3 - ways
100	2.3	1.7	1.3
125	2.6	1.8	1.4
160	2.5	1.7	1.3
200	2.4	1.7	1.3
250	2.3	1.7	1.3
315	2.2	1.7	1.2
400	2.3	1.7	1.2

Air jet distribution

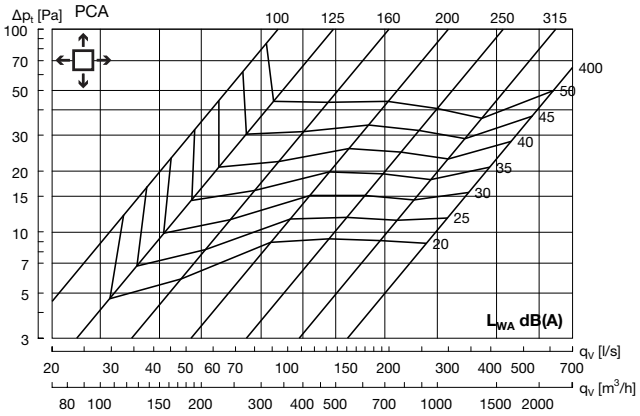
l_b = Distance from the diffuser to the point where there is maximum dispersal.
b_v = Depth of the air jet on a vertical plane.
b_h = Width of the air jet on a horizontal plane.



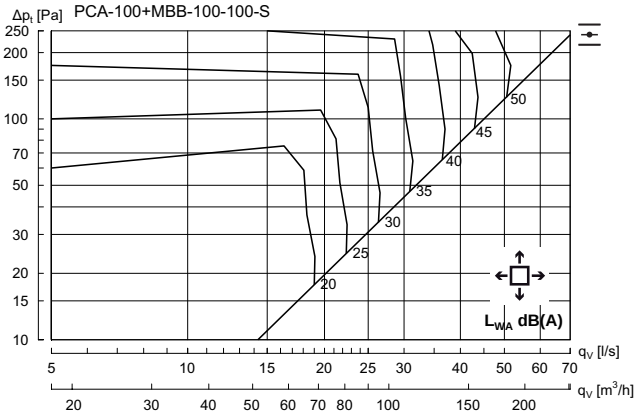
Perforated diffuser PCA

Technical data

PCA without box - supply air



PCA 100 + MBB - Supply air

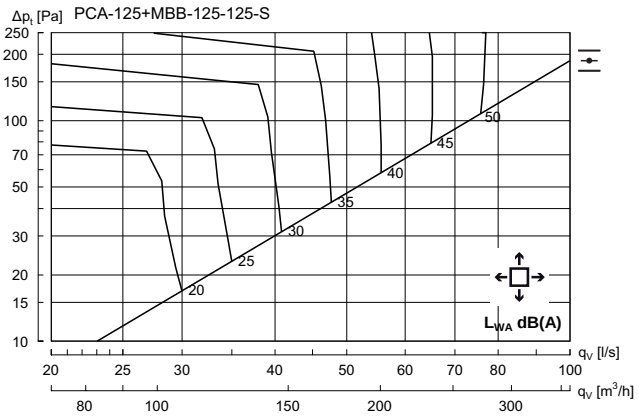


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	12	5	2	-5	-4	-11	-20	-26

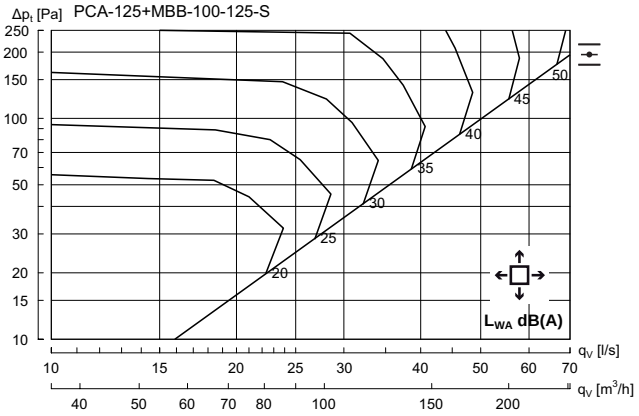
Perforated diffuser PCA

Technical data

PCA 125 + MBB - Supply air

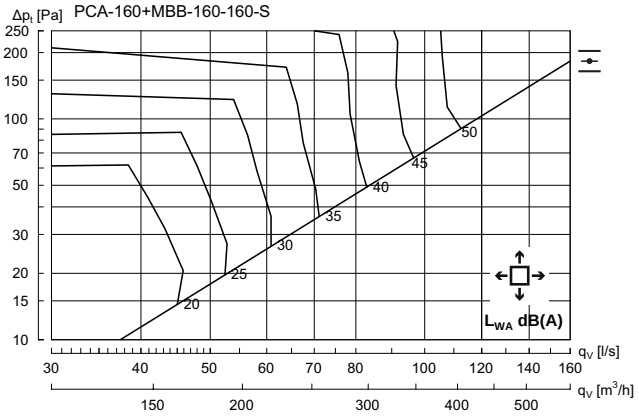


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	9	5	-1	-4	-3	-11	-20	-26

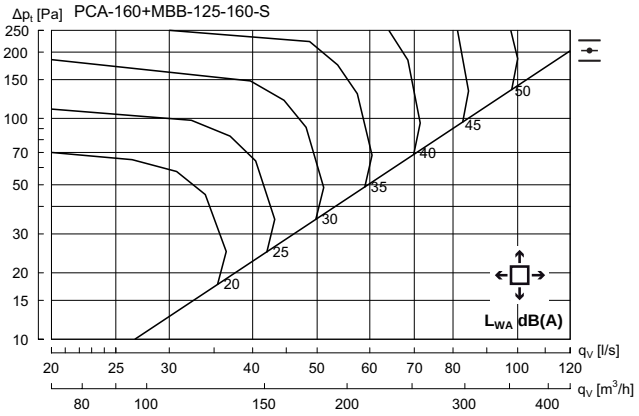


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	11	7	3	-5	-5	-11	-18	-25

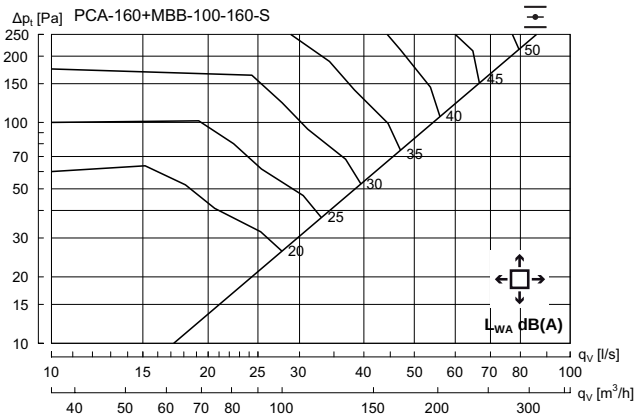
PCA 160 + MBB - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	8	5	-2	-4	-3	-11	-21	-29



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	9	5	1	-4	-4	-10	-17	-25

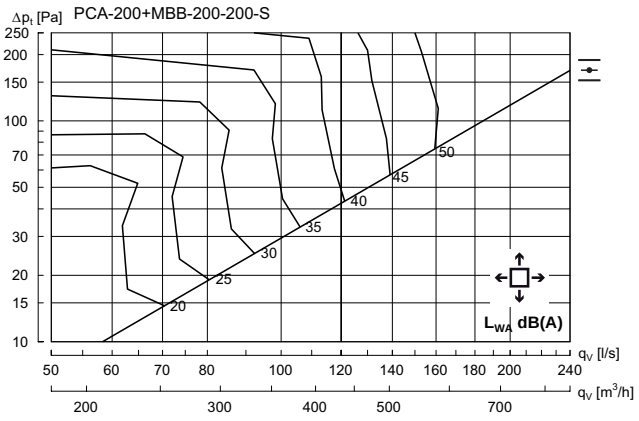


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	9	4	1	-3	-5	-10	-15	-19

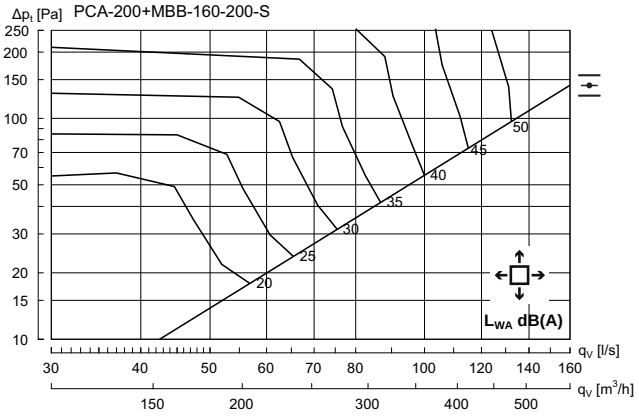
Perforated diffuser PCA

Technical data

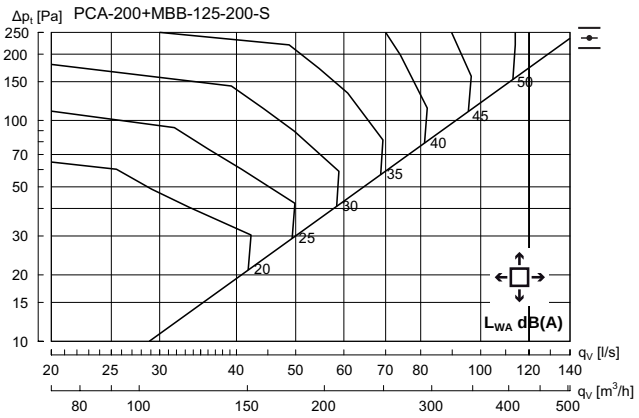
PCA 200 + MBB - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	11	5	-3	-3	-3	-11	-22	-29

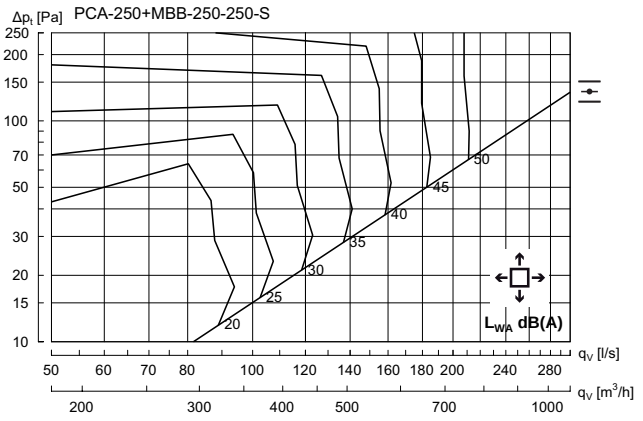


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	10	5	-2	-4	-3	-10	-20	-26

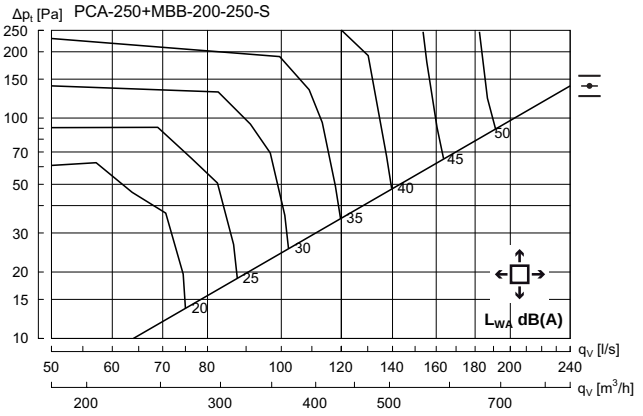


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	10	5	1	-4	-5	-10	-15	-22

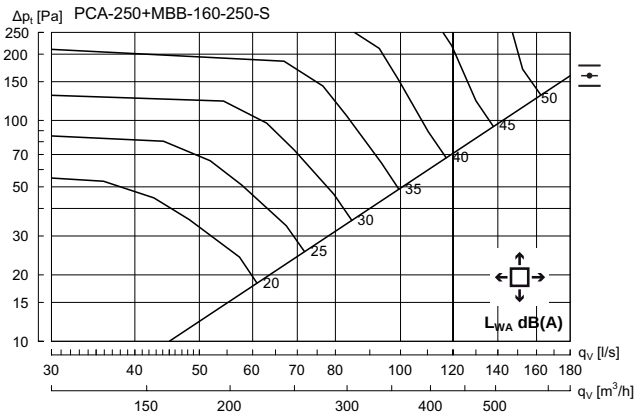
PCA 250 + MBB - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	11	3	-4	-3	-3	-12	-22	-30



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	10	5	-2	-3	-3	-11	-20	-28

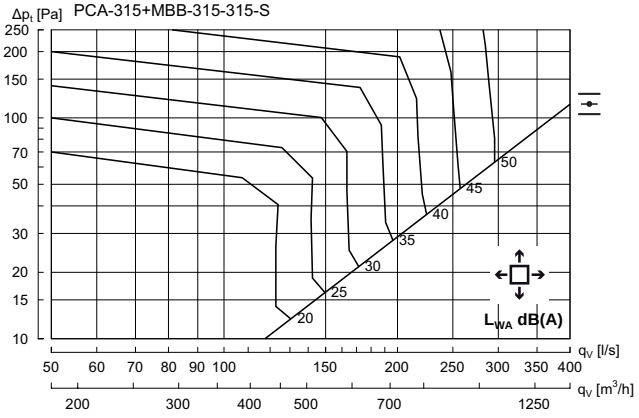


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	8	5	0	-4	-4	-10	-17	-23

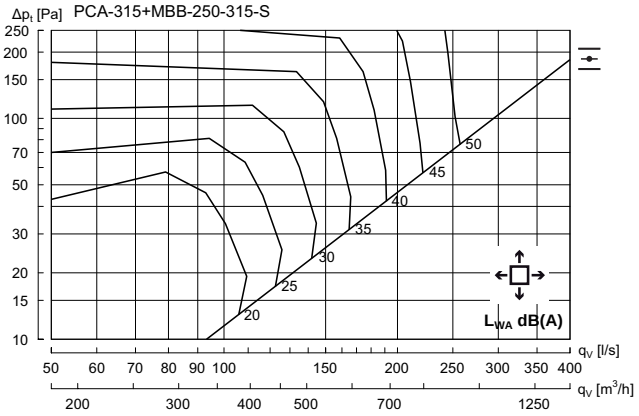
Perforated diffuser PCA

Technical data

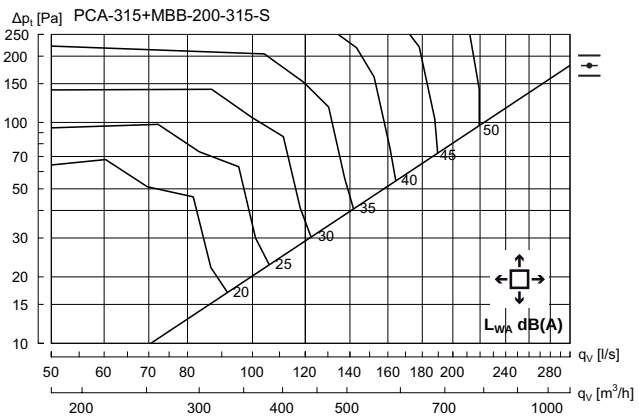
PCA 315 + MBB - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	12	2	-3	-2	-3	-13	-23	-33

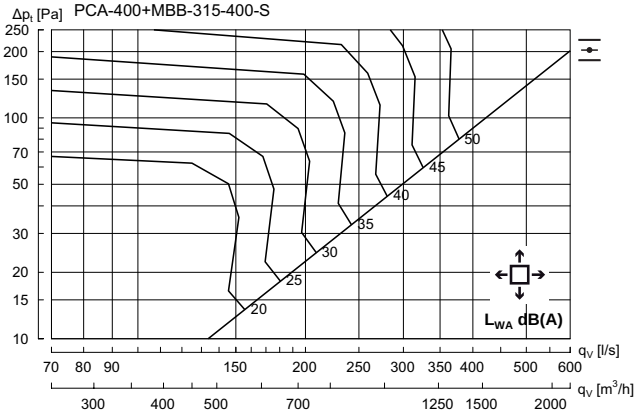


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	11	3	-2	-3	-4	-11	-18	-27

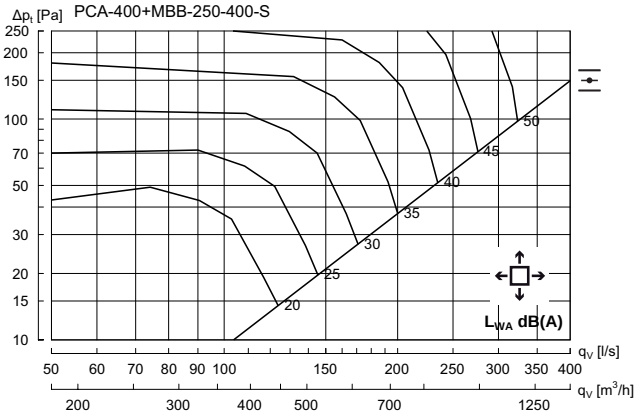


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	10	5	-1	-3	-4	-11	-19	-25

PCA 400 + MBB - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	14	2	0	-2	-5	-13	-17	-26



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	10	4	0	-2	-4	-11	-17	-24

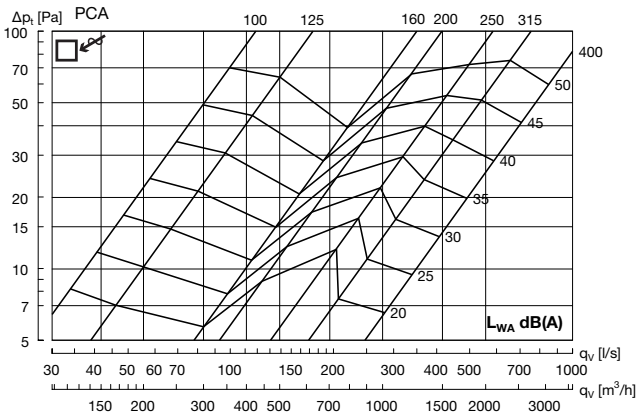
Correction sound power level (L_{WA}) and pressure loss (ΔP_t)

PCA + MBB duct $Ød_1$	PCA $Ød_2$	1 - ways L_{WA}	1 - ways Δp_t	2 - ways L_{WA}	2 - ways Δp_t	3 - ways L_{WA}	3 - ways Δp_t
100	100	+ 10	x 1,35	+ 6	x 1,1	+ 4	x 1,05
100	125	+ 10	x 1.3	+ 4	x 1.1	+ 2	x 1.05
100	160	+ 5	x 1.1	+ 2	x 1.05	+ 1	x 1
125	125	+ 10	x 1,35	+ 6	x 1,1	+ 4	x 1,05
125	160	+ 10	x 1,4	+ 4	x 1,1	+ 1	x 1
125	200	+ 4	x 1,2	+ 2	x 1,05	+ 1	x 1
160	160	+ 13	x 1,8	+ 6	x 1,3	+ 2	x 1,1
160	200	+ 16	x 1,7	+ 10	x 1,2	+ 4	x 1,05
160	250	+ 10	x 1,3	+ 6	x 1,1	+ 3	x 1
200	200	+ 17	x 2,3	+ 11	x 1,4	+ 7	x 1,1
200	250	+ 13	x 1,8	+ 6	x 1,2	+ 4	x 1,1
200	315	+ 9	x 1,5	+ 4	x 1,1	+ 0	x 1,05
250	250	+ 21	x 2,1	+ 11	x 1,4	+ 7	x 1,2
250	315	+ 19	x 1,8	+ 7	x 1,2	+ 3	x 1,1
250	400	+ 10	x 1,5	+ 6	x 1,2	+ 0	x 1
315	315	+ 21	x 2,1	+ 10	x 1,3	+ 4	x 1,1
315	400	+ 21	x 1,8	+ 8	x 1,5	+ 3	x 1,2

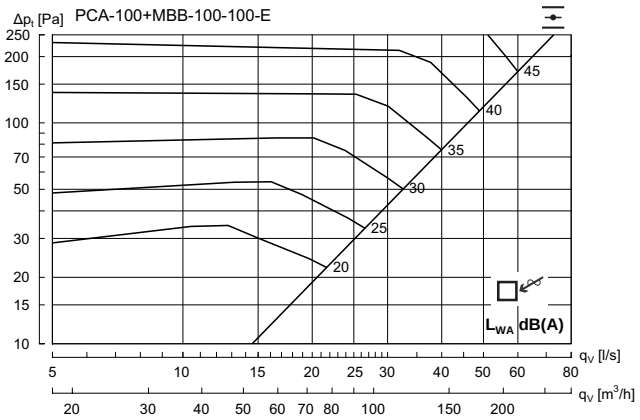
Perforated diffuser PCA

Technical data

PCA without box - Exhaust air



PCA 100 + MBB - Exhaust air

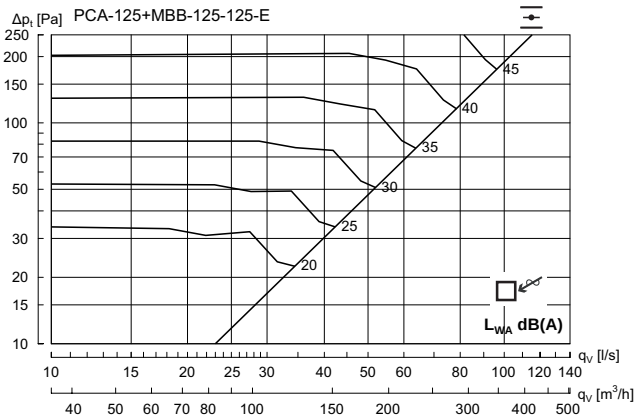


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	11	0	3	-3	-6	-10	-15	-22

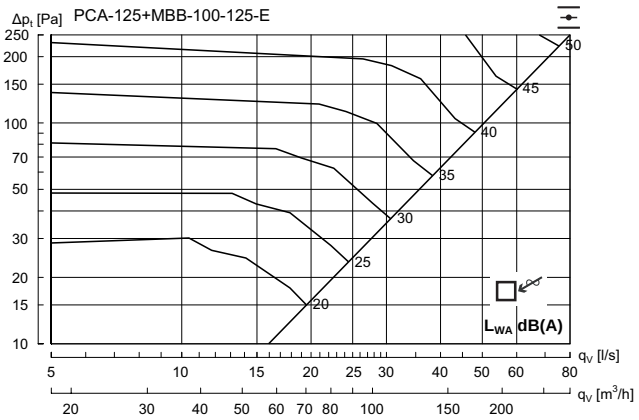
Perforated diffuser PCA

Technical data

PCA 125 + MBB - Exhaust air

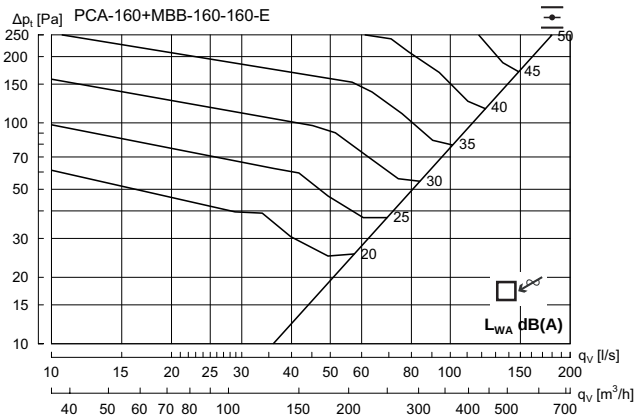


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	13	5	-1	-4	-4	-11	-15	-20

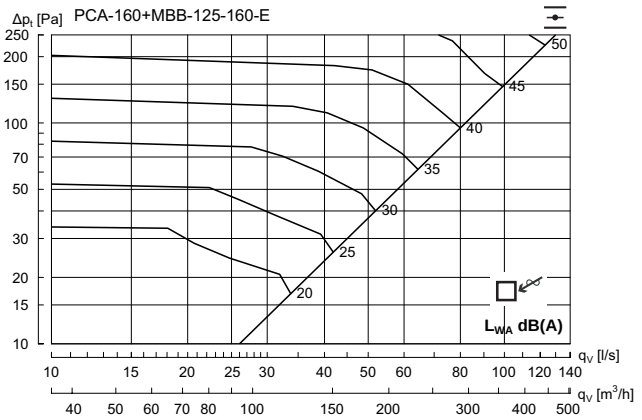


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	13	-1	3	-3	-6	-10	-16	-19

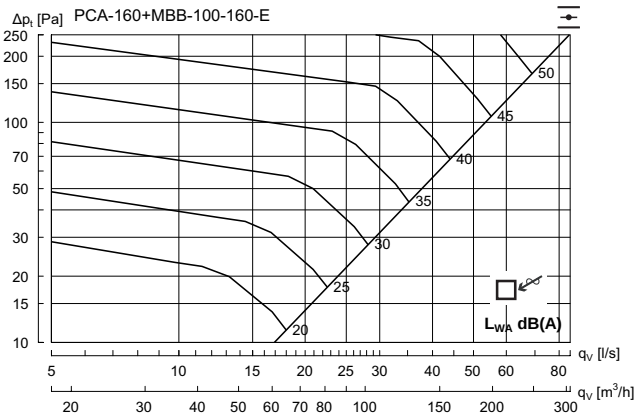
PCA 160 + MBB - Exhaust air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	16	6	-1	-5	-4	-10	-15	-19



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	13	5	0	-3	-5	-11	-15	-22

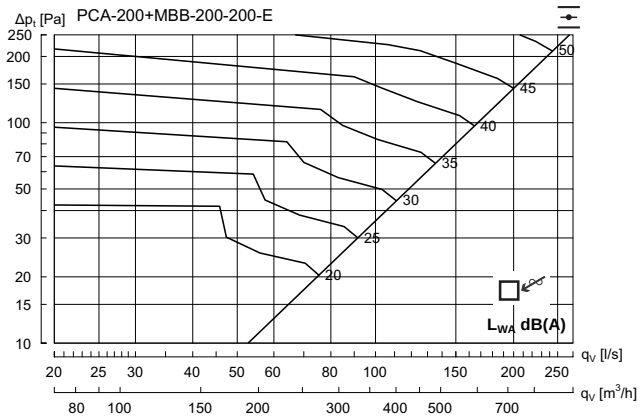


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	10	-1	5	-3	-8	-11	-18	-25

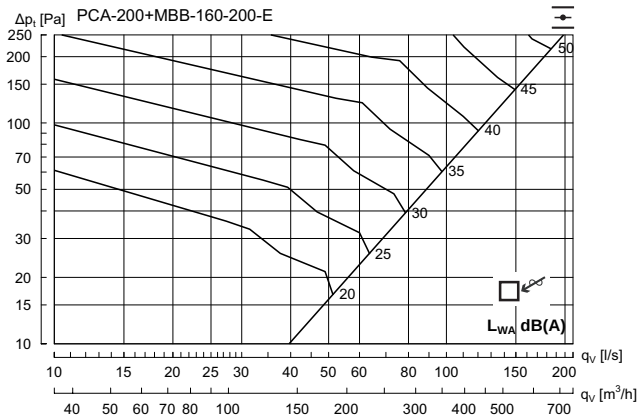
Perforated diffuser PCA

Technical data

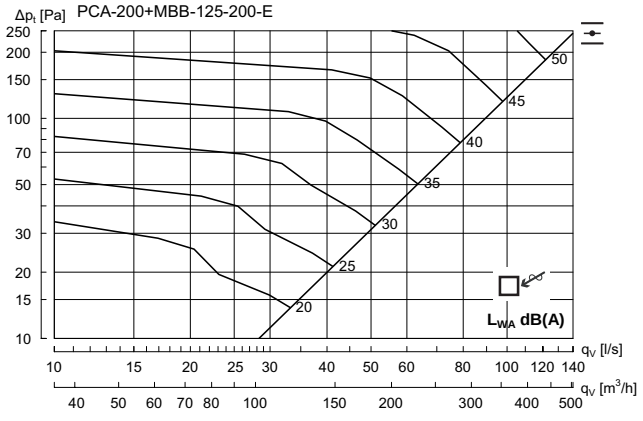
PCA 200 + MBB - Exhaust air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	15	4	-1	-4	-5	-9	-16	-25

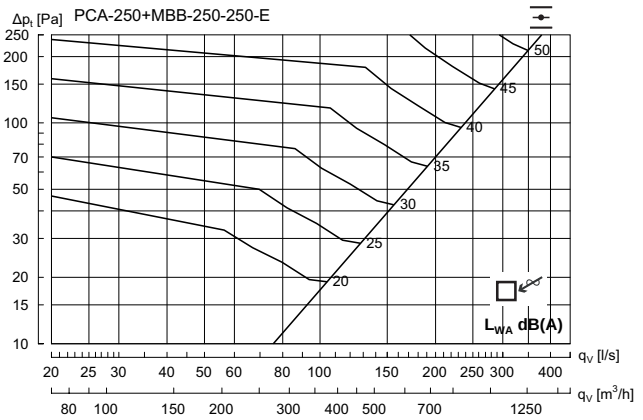


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	15	6	-1	-5	-5	-9	-14	-20

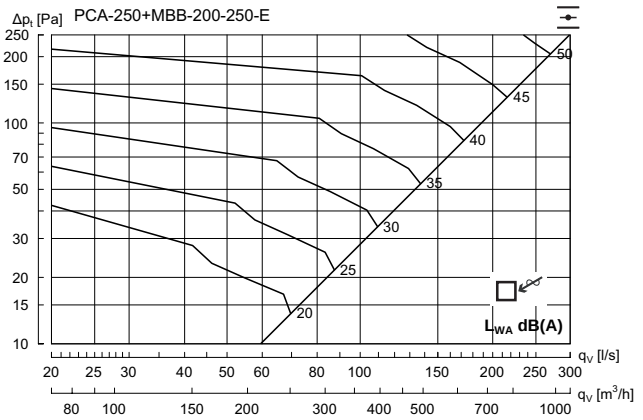


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	9	3	1	-4	-5	-10	-14	-21

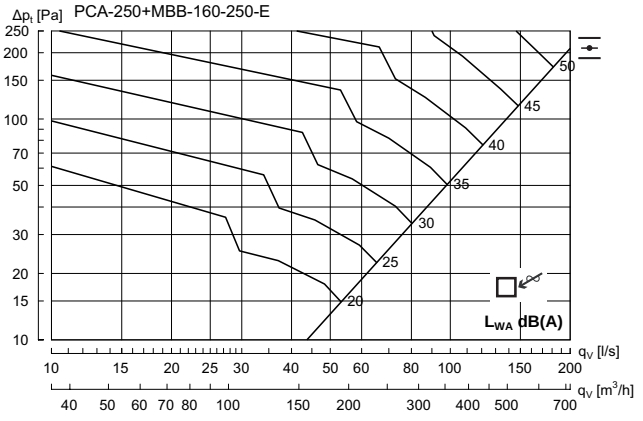
PCA 250 + MBB - Exhaust air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	10	5	2	-3	-5	-11	-16	-25



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	12	5	0	-3	-5	-10	-14	-23

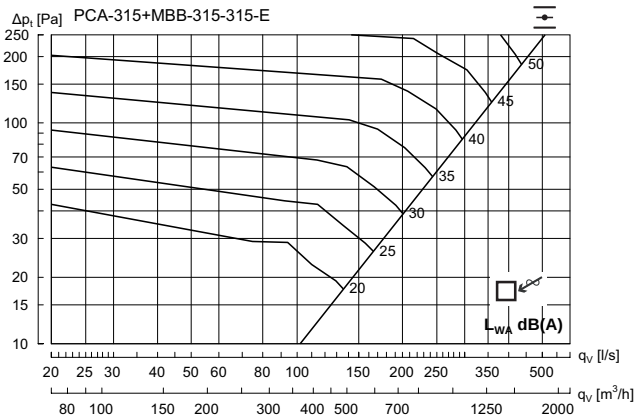


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	16	6	0	-5	-5	-9	-15	-21

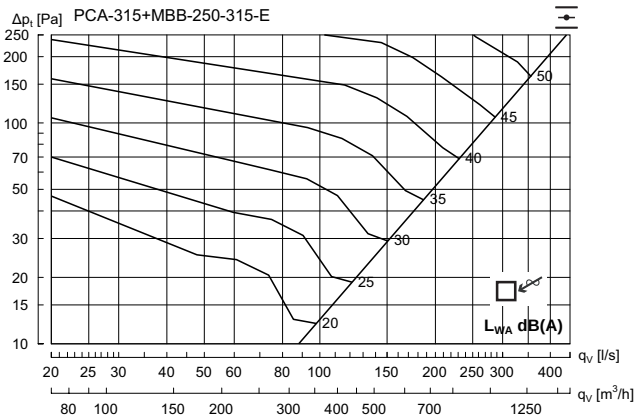
Perforated diffuser PCA

Technical data

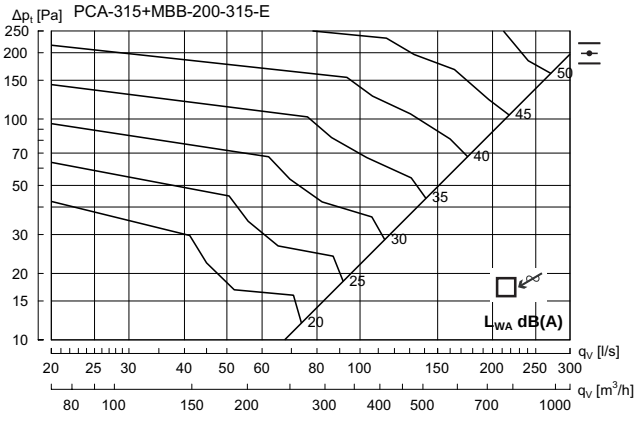
PCA 315 + MBB - Exhaust air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	13	5	3	-4	-6	-10	-16	-26

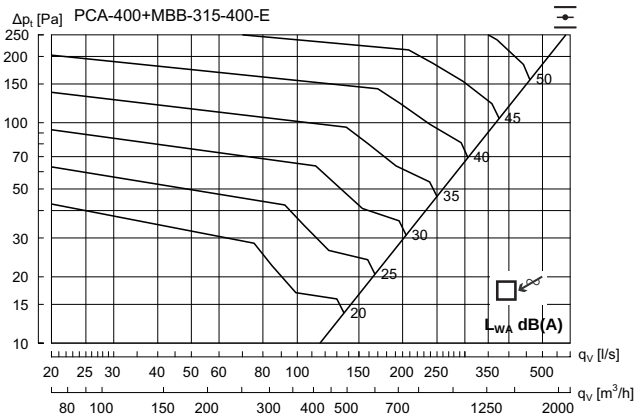


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	7	5	2	-3	-6	-10	-16	-24

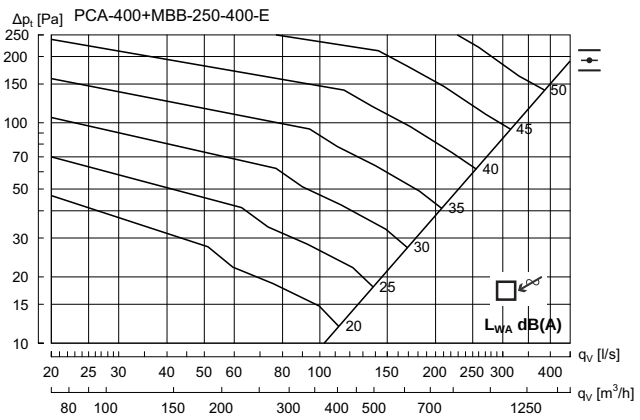


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	13	5	0	-3	-5	-9	-15	-23

PCA 400 + MBB - Exhaust air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	10	4	2	-3	-6	-9	-14	-25



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	10	5	2	-4	-5	-10	-15	-23

Plain diffuser

LKA

Description

LKA is a square diffuser with an unperforated face plate that can be used for both supply and exhaust air. LKA is suitable for the horizontal supply of cooled air where a high impulse is required. It can be equipped with accessories of various types. Installing an LKA diffuser in a plenum box type MBB can help to achieve a stable airflow to the diffuser as well as realise the potential for individual adjustment.

- Suitable for both supply and exhaust air
- Suitable for the horizontal supply of cooled air
- High impulse
- Option of 1, 2 and 3-way supply air

Maintenance

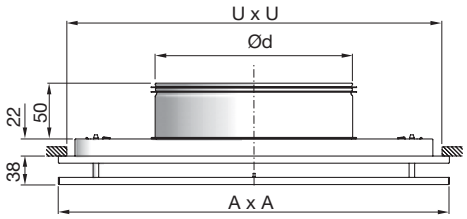
The face plate can be removed to enable cleaning of internal parts or to gain access to the duct or box. The visible parts of the diffuser can be wiped with a damp cloth.

Order code

Product	**LKA**	**aaa**
Type		
LKA		
Connection dim. Ød		
Ød 125-400		

Example: LKA-200

Dimensions



LKA Ød	A	U*	Free area A	Weight
mm	mm	mm	m^2	kg
125	235	200	0,011	1,10
160	295	260	0,016	1,80
200	395	360	0,022	2,80
250	495	460	0,033	4,20
315	595	560	0,041	5,70
400	595	560	0,042	5,70

* U x U = Ceiling grid opening

Materials and finish:

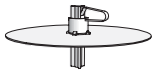
Material:	Galvanised steel
Standard finish:	Powder-coated
Standard colour:	White RAL 9010, gloss 30

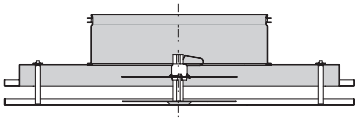
The diffuser is available in other colours. Please contact Lindab's sales department for further information.

Plain diffuser LKA

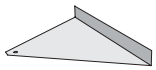
Accessories

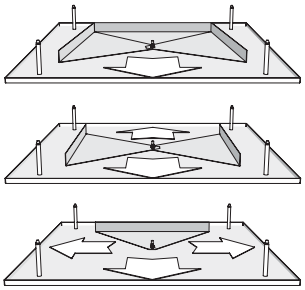
DRZ - Balancing damper



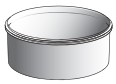


Blending profiles (set)

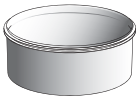


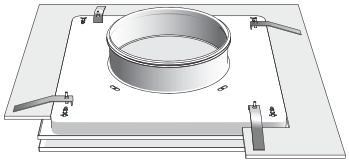


MBZ - Extension piece



DKZ - Mounting brackets (set)





Order code - accessoreies

Product	aaa	bbb
Type		
Size		

Example: DRZ-200

LM - Module plate

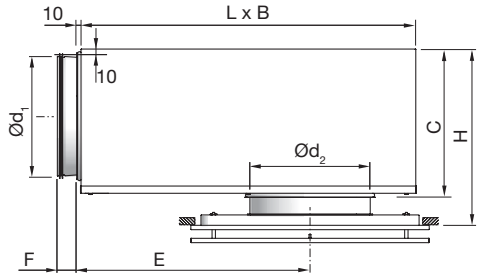
Order code - module plate

Product	LM	a	LKA	ccc
Type				
Ceiling system				
Diffuser				
Size				

Example: LM-1-LKA-200
Ceiling system - see introductory summary.

MBB - Plenum box

LKA + MBB



LKA + MBB duct Ød1 mm	LKA Ød2 mm	B mm	C mm	E mm	F mm	H* mm	L mm
100	125	260	159	216	50	180 - 220	310
100	160	260	159	216	50	180 - 220	310
125	125	310	184	262	50	205 - 245	376
125	160	310	184	262	50	205 - 245	376
125	200	310	184	262	50	205 - 245	376
160	160	380	220	323	50	239 - 279	459
160	200	380	220	323	50	239 - 279	459
160	250	380	220	323	50	239 - 279	459
200	200	460	259	396	70	280 - 320	565
200	250	460	259	396	70	280 - 320	565
200	315	460	259	396	70	280 - 320	565
250	250	540	309	486	70	330 - 370	698
250	315	540	309	486	70	330 - 370	698
250	400	540	309	486	70	330 - 370	698
315	315	540	373	646	70	395 - 435	858
315	400	540	373	646	70	395 - 435	858

* Using accessory MBZ the H dimension will increase:
$Ød_2$ = 125 - 200 mm => H +40 mm
$Ød_2$ = 250 - 315 mm => H +60 mm
$Ød_2$ = 400 mm => H +80 mm

Order code

Product	MBB	aaa	bbb	c
Type				
MBB				
Duct connection $Ød_1$				
Ø100-315				
Diffuser dimension $Ød_2$				
Ø125-400				
Function				
S = Supply air				
E = Exhaust				

Example: LKA-200+MBB-160-200-S

Plain diffuser

LKA

Technical data

Capacity

Air flow q_v [l/s] and [m^3/h], total pressure Δp_t [Pa], throw $l_{0.2}$ [m] and sound power 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 $L_{WA}+K_{ok}$. K_{ok} values are specified in chart beneath the diagrams on the following pages.

Quick selection, supply air

LKA + MBB duct Ød1	LKA Ød2	$\Delta p_t \geq 50$ Pa 30 dB(A) l/s	m^3/h	$\Delta p_t \geq 50$ Pa 35 dB(A) l/s	m^3/h
100	125	31	112	38	137
100	160	40	144	49	176
125	125	42	151	50	180
125	160	53	191	64	230
125	200	63	227	75	270
160	160	60	216	73	263
160	200	70	252	88	317
160	250	94	338	115	414
200	200	98	353	118	425
200	250	106	382	129	464
200	315	133	479	159	572
250	250	116	418	141	508
250	315	136	490	167	601
250	400	139	500	182	655
315	315	153	551	183	659
315	400	169	608	200	720

Sound attenuation

Sound attenuation of the diffuser ΔL from duct to room, including end reflection, see table below

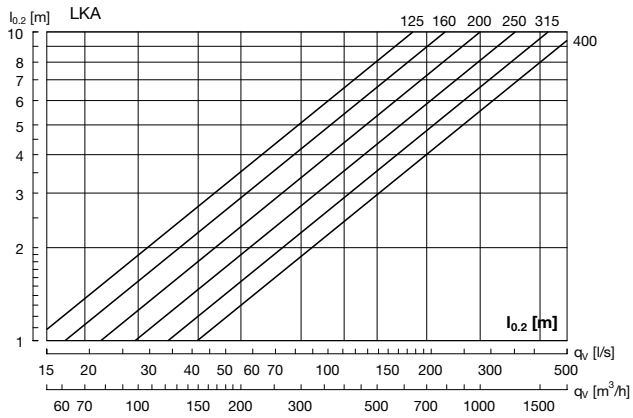
LKA + MBB duct Ød1	LKA Ød2	Centre frequency Hz 63	125	250	500	1K	2K	4K	8K
100	125	20	17	6	16	19	20	18	22
100	160	21	17	5	12	19	20	18	21
125	125	17	14	9	19	15	21	18	20
125	160	13	13	9	18	18	18	18	20
125	200	14	12	7	15	16	18	17	19
160	160	18	17	11	16	21	19	20	21
160	200	15	14	9	20	21	20	20	20
160	250	16	16	7	17	13	18	19	20
200	200	14	11	8	15	21	18	20	18
200	250	13	10	8	16	20	17	19	17
200	315	15	9	6	14	17	17	18	17
250	250	16	9	9	17	20	19	19	19
250	315	15	8	9	16	18	16	18	18
250	400	13	6	6	14	16	17	17	17
315	315	8	10	10	16	20	19	18	23
315	400	8	10	10	13	19	19	17	21

Balancing

Balancing data is contained in a separate brochure.

Throw $l_{0.2}$

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

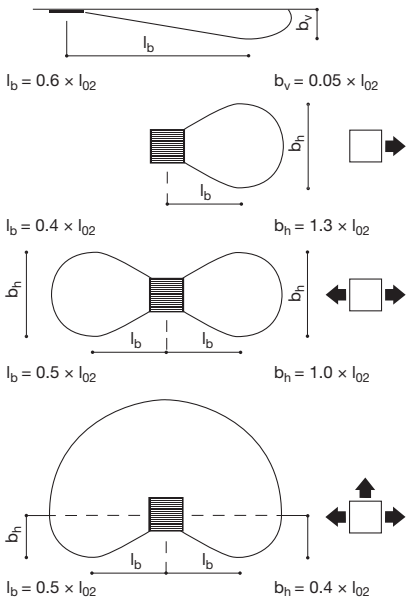


Correction throw $L_{0.2}$

LKA Ød	1 - ways	2 - ways	3 - ways
125	2.3	1.8	1.3
160	2.3	1.8	1.3
200	2.3	1.9	1.3
250	2.3	2	1.3
315	2.3	2	1.3
400	2.2	2.1	1.3

Air jet distribution

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.

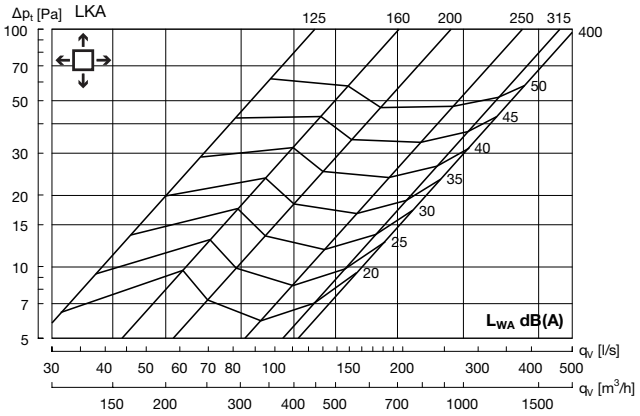


Plain diffuser

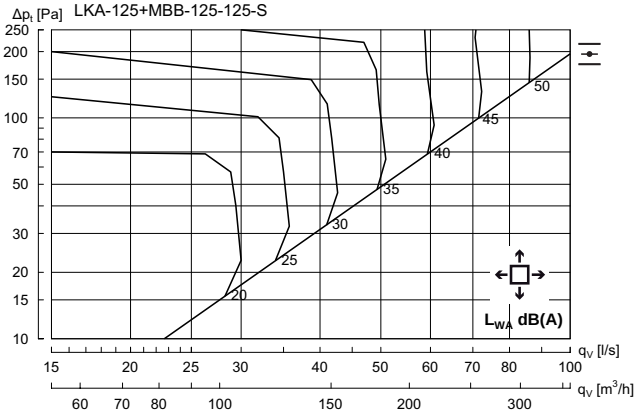
LKA

Technical data

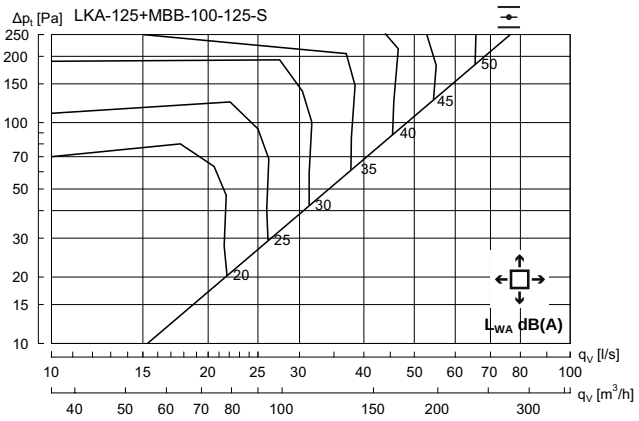
LKA without box - Supply air



LKA 125 + MBB - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	12	6	1	-4	-4	-13	-20	-28



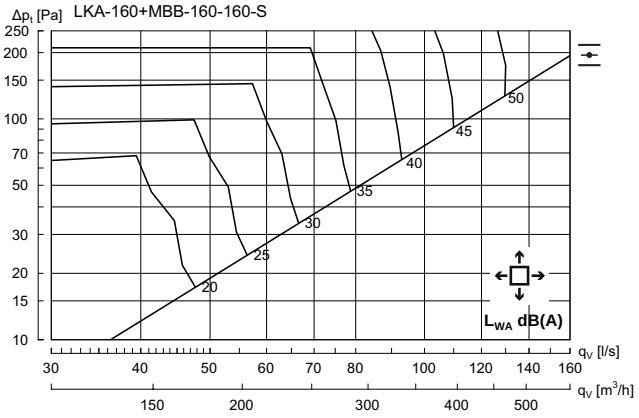
Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	11	7	3	-4	-5	-14	-18	-24

Plain diffuser

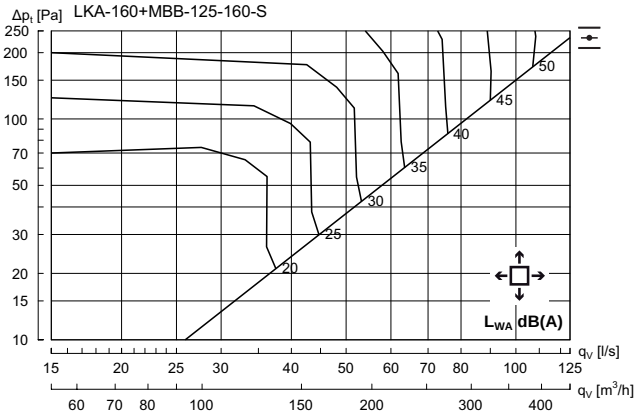
LKA

Technical data

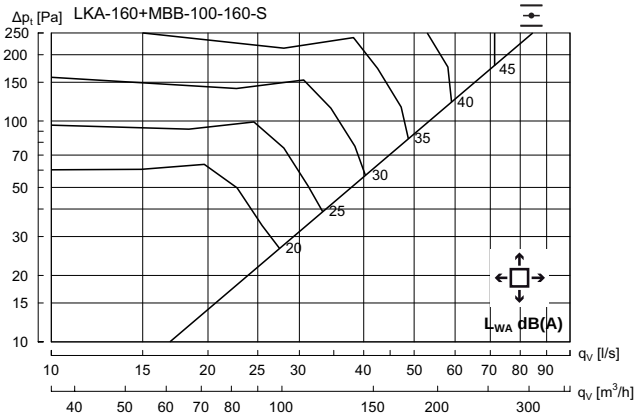
LKA 160 + MBB - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	11	11	0	-2	-7	-15	-22	-28

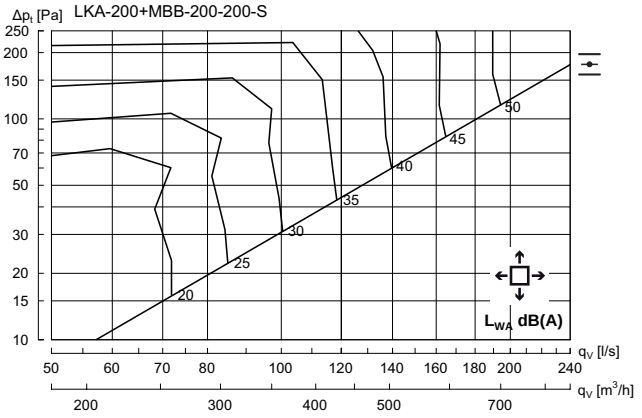


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	13	8	1	-3	-6	-12	-17	-25

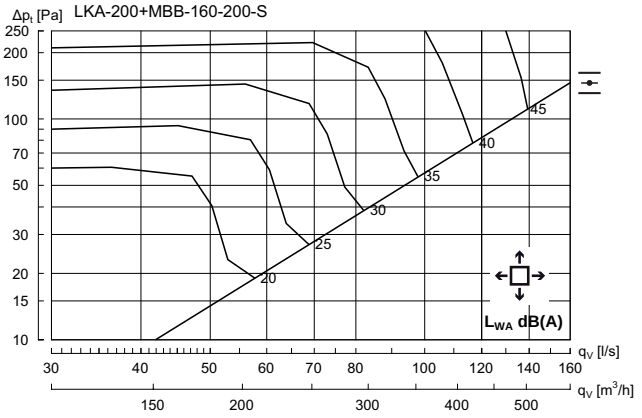


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	12	5	1	-2	-6	-10	-14	-20

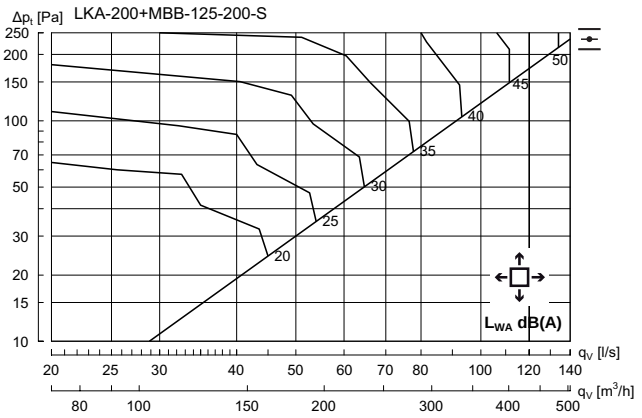
LKA 200 + MBB - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	12	6	-1	-1	-5	-15	-21	-26



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	12	9	0	-2	-6	-12	-19	-24



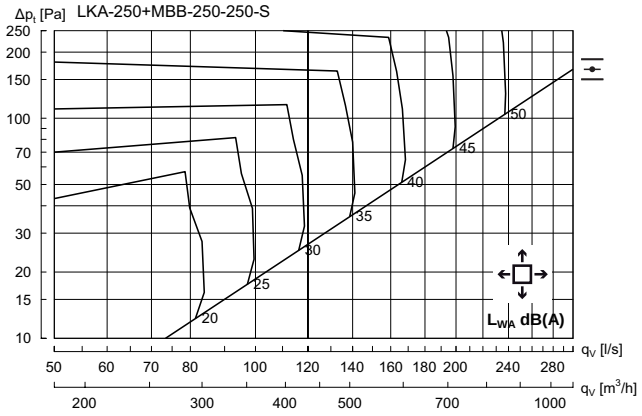
Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	12	7	1	-3	-6	-11	-15	-21

Plain diffuser

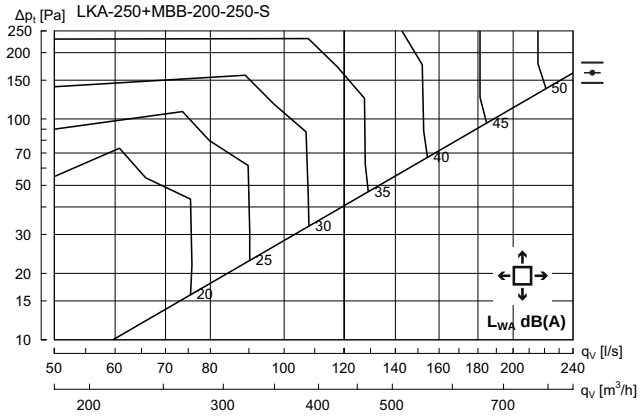
LKA

Technical data

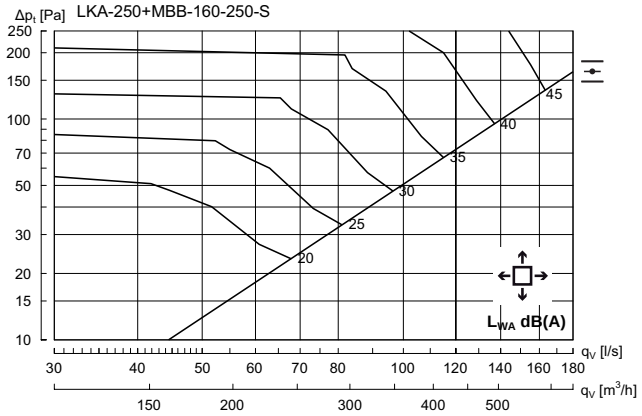
LKA 250 + MBB - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	12	3	-4	0	-4	-17	-24	-31

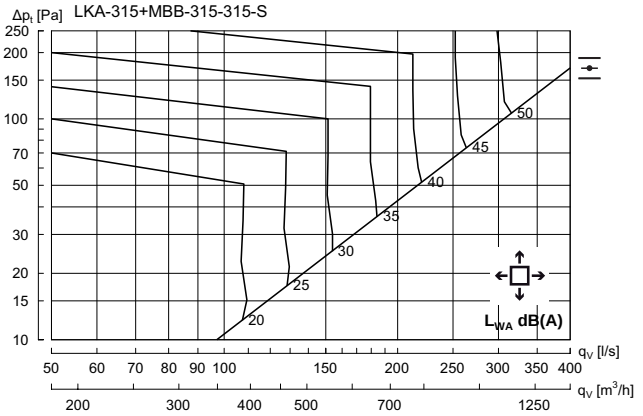


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	12	6	-2	-1	-5	-14	-19	-23

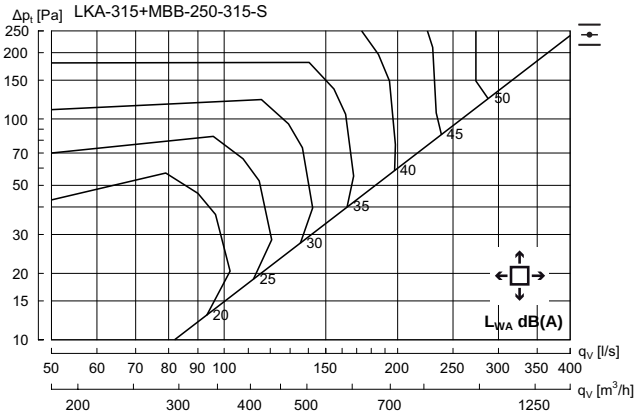


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	9	7	-2	-3	-5	-10	-15	-21

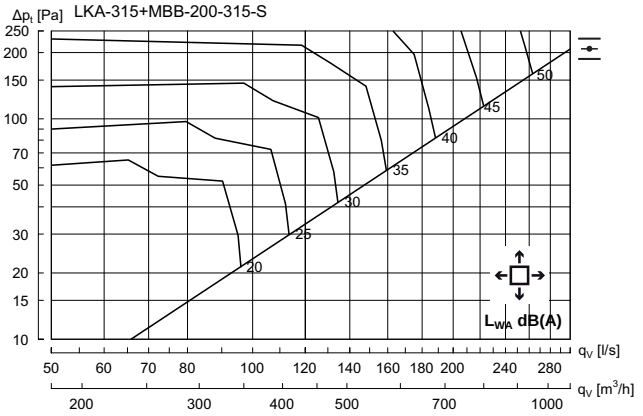
LKA 315 + MBB - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	13	5	-2	-1	-4	-17	-25	-36



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	14	5	-2	-2	-4	-13	-19	-26



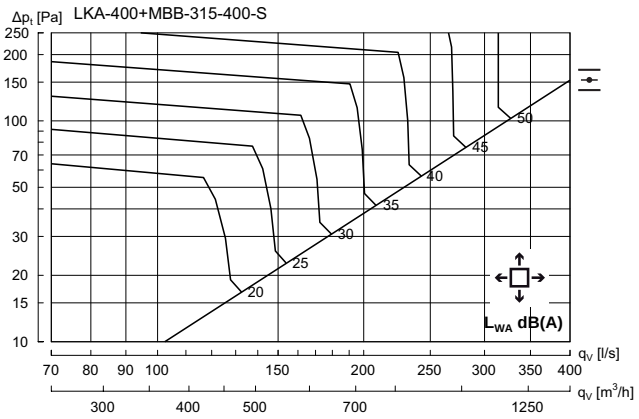
Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	13	6	-2	-3	-4	-11	-17	-22

Plain diffuser

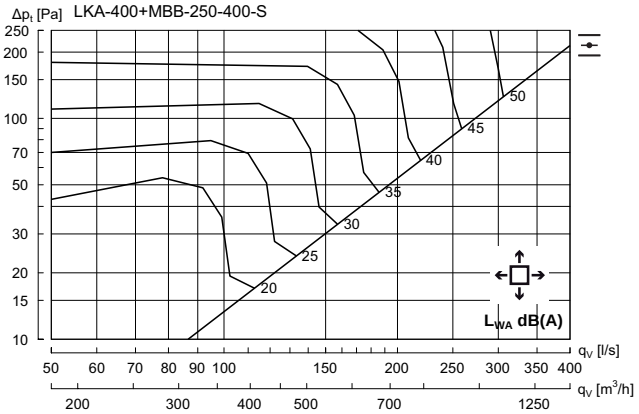
LKA

Technical data

LKA 400 + MBB - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	14	6	1	-1	-6	-16	-21	-27



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	12	7	0	-2	-6	-12	-19	-26

LKA + MBB - Supply air

Correction sound power level (L_{WA}) and pressure loss (Δp_t)

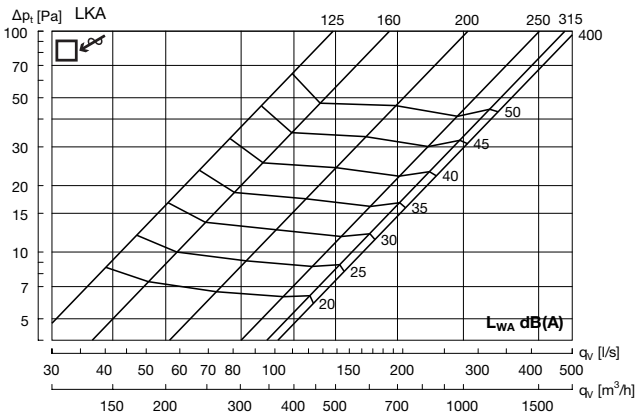
LKA + MBB duct $Ød_1$	PKA $Ød_2$	1 - ways L_{WA}	1 - ways Δp_t	2 - ways L_{WA}	2 - ways Δp_t	3 - ways L_{WA}	3 - ways Δp_t
100	125	+ 10	x 1.3	+ 4	x 1.1	+ 2	x 1,05
100	160	+ 5	x 1.1	+ 2	x 1.05	+ 1	x 1
125	125	+ 10	x 1,35	+ 6	x 1,1	+ 4	x 1,05
125	160	+ 10	x 1,4	+ 4	x 1,1	+ 1	x 1
125	200	+ 4	x 1,2	+ 2	x 1,05	+ 1	x 1
160	160	+ 16	x 1,8	+ 9	x 1,3	+ 4	x 1,1
160	200	+ 16	x 1,7	+ 10	x 1,2	+ 4	x 1,05
160	250	+ 10	x 1,3	+ 6	x 1,1	+ 3	x 1
200	200	+ 17	x 2,3	+ 11	x 1,4	+ 7	x 1,1
200	250	+ 13	x 1,8	+ 6	x 1,2	+ 4	x 1,1
200	315	+ 9	x 1,5	+ 4	x 1,1	+ 0	x 1,05
250	250	+ 21	x 2,1	+ 11	x 1,4	+ 7	x 1,2
250	315	+ 19	x 1,8	+ 7	x 1,2	+ 3	x 1,1
250	400	+ 10	x 1,5	+ 6	x 1,2	+ 0	x 1
315	315	+ 21	x 2,1	+ 10	x 1,3	+ 4	x 1,1
315	400	+ 21	x 1,8	+ 8	x 1,5	+ 3	x 1,2

Plain diffuser

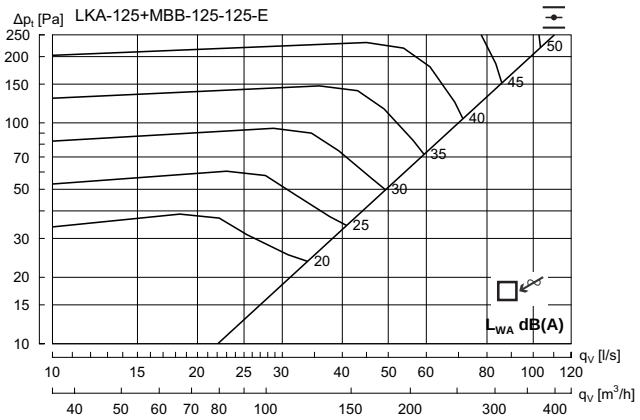
LKA

Technical data

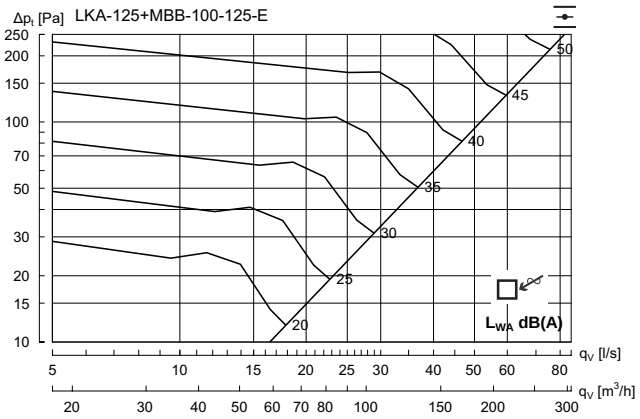
LKA without box - Exhaust air



LKA 125 + MBB - Exhaust air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	13	4	1	-2	-5	-12	-15	-22



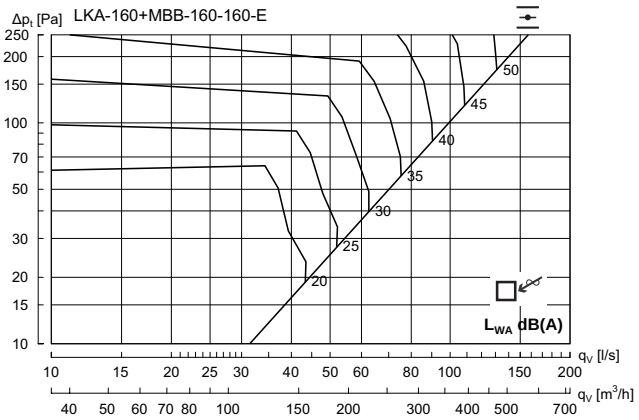
Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	13	0	4	-2	-8	-11	-16	-22

Plain diffuser

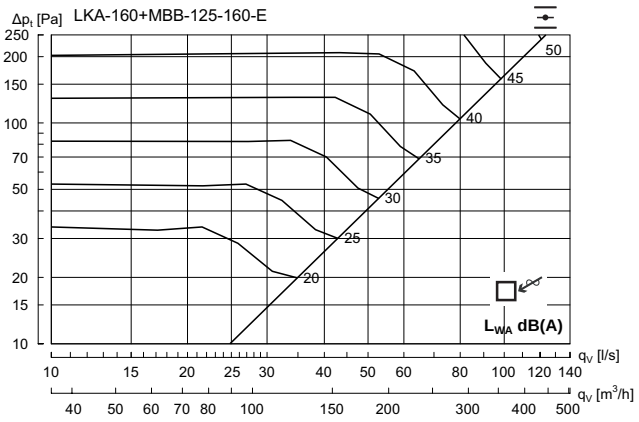
LKA

Technical data

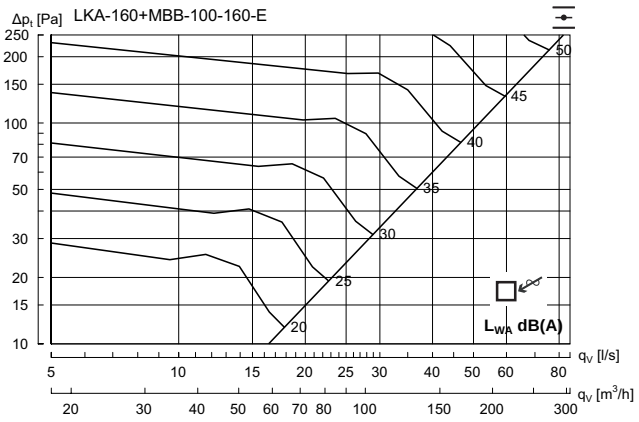
LKA 160 + MBB - Exhaust air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	16	6	1	-4	-5	-11	-17	-24

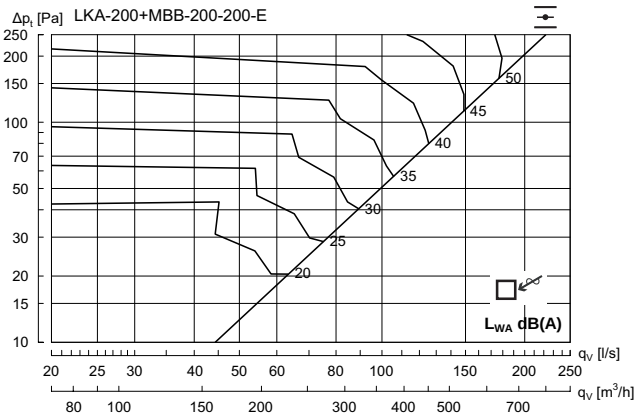


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	12	6	2	-2	-7	-12	-14	-19

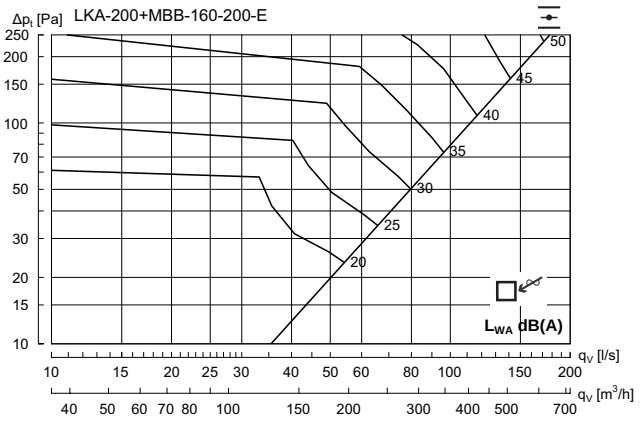


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	11	-1	5	-2	-9	-13	-18	-24

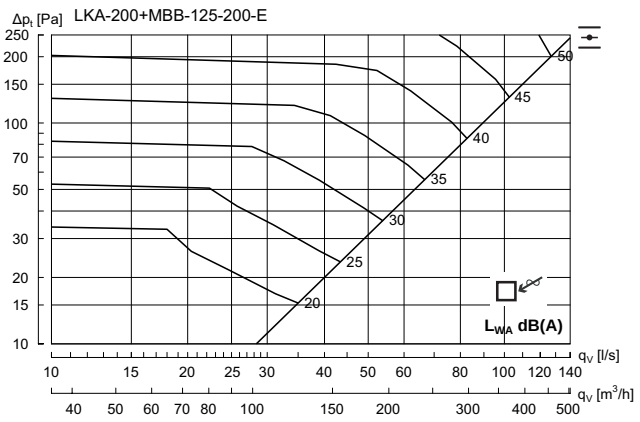
LKA 200 + MBB - Exhaust air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	14	6	0	-3	-5	-10	-19	-27



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	16	7	-1	-4	-6	-10	-14	-20



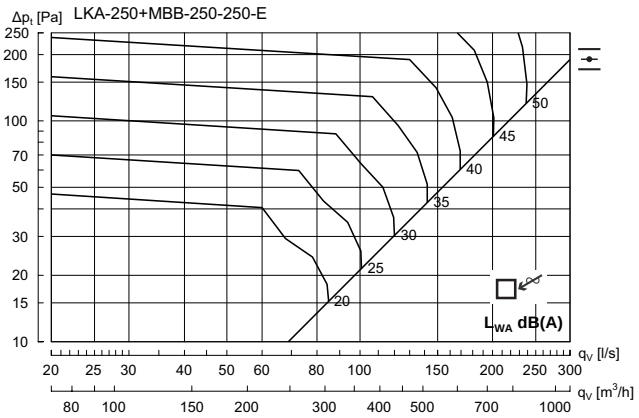
Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	11	3	0	-2	-5	-11	-14	-21

Plain diffuser

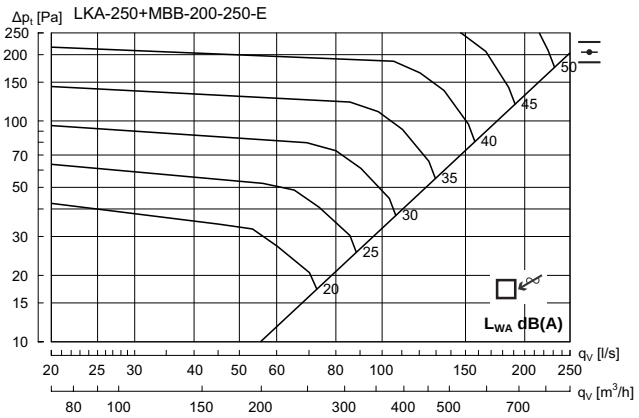
LKA

Technical data

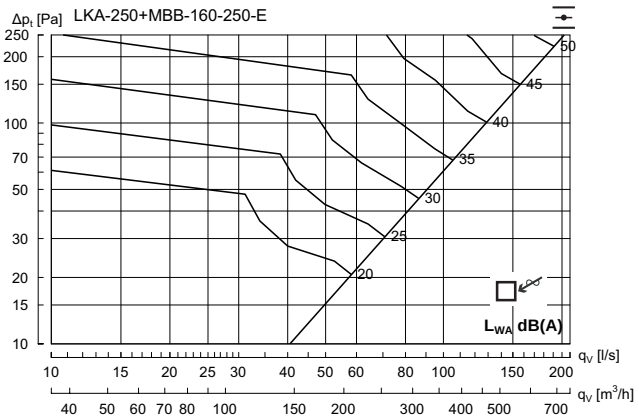
LKA 250 + MBB - Exhaust air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	12	4	-1	-3	-3	-12	-19	-30

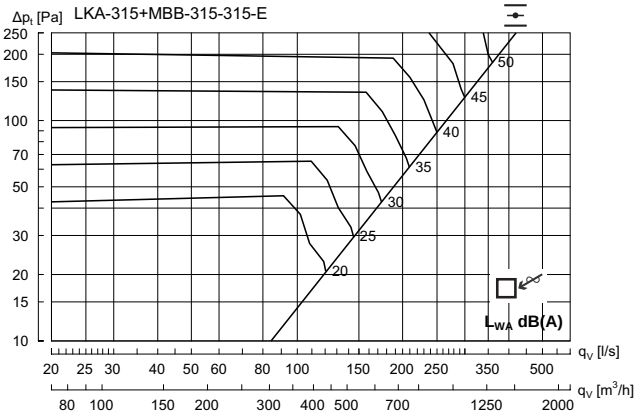


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	13	3	-1	-3	-4	-11	-15	-24

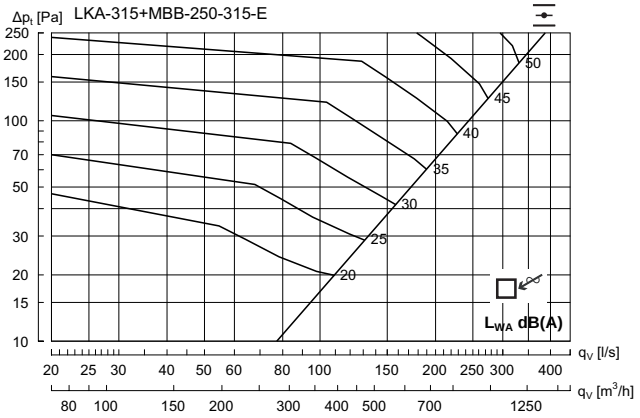


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	14	6	0	-3	-5	-11	-15	-19

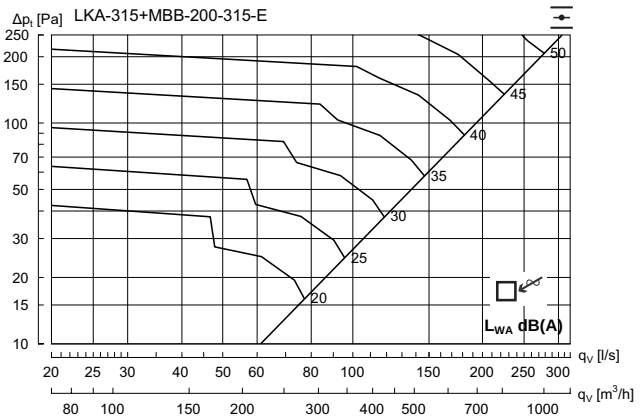
LKA 315 + MBB - Exhaust air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	13	5	2	-2	-6	-12	-17	-27



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	10	5	1	-2	-6	-10	-16	-24



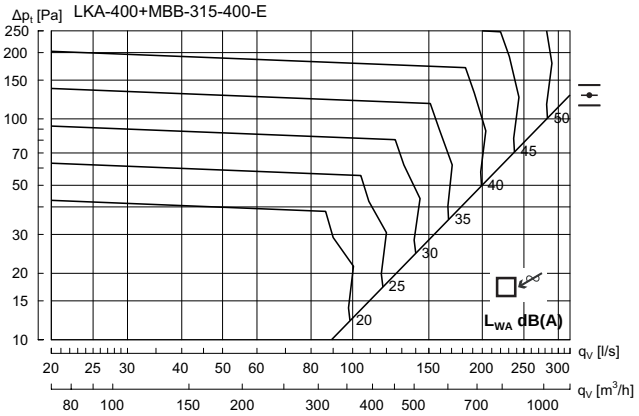
Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	14	5	0	-2	-6	-12	-14	-22

Plain diffuser

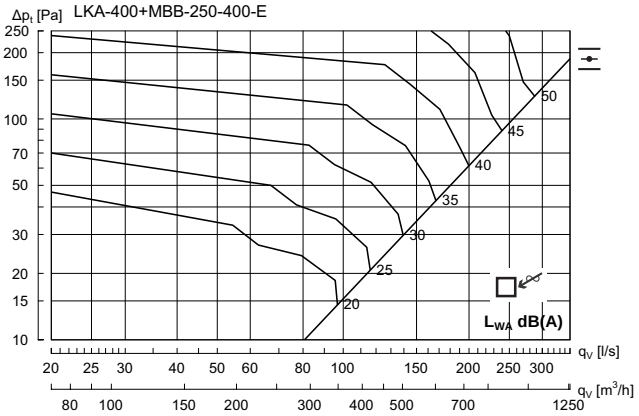
LKA

Technical data

LKA 400 + MBB - Exhaust air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	10	5	0	0	-6	-15	-20	-27



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	12	5	1	-1	-7	-12	-16	-24

Plain diffuser

LCA

Description

LCA is a circular diffuser with an unperforated face plate that can be used for both supply and exhaust air. LCA is suitable for the horizontal supply of cooled air where a high impulse is required. It can be equipped with accessories of various types in order to achieve optimum function. Installing an LCA diffuser in a plenum box type MBB can help to achieve a stable airflow to the diffuser as well as realise the potential for individual adjustment.

- Suitable for both supply and exhaust air
- Suitable for the horizontal supply of cooled air
- High impulse
- Option of 1, 2 and 3-way supply air
- Discrete design

Maintenance

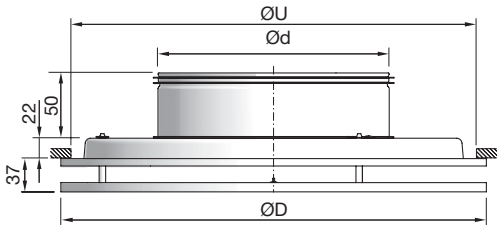
The face plate can be removed to enable cleaning of internal parts or to gain access to the duct or box. The visible parts of the diffuser can be wiped with a damp cloth.

Order code

Product	**LCA**	**aaa**
Type		
LCA		
Connection dim. Ød		
Ød 100-400		

Example: LCA-200

Dimensions



LCA Ød mm	ØD mm	ØU* mm	Free area A m^2	Weight kg
100	240	200	0,010	1,00
125	240	200	0.011	1,00
160	300	260	0.0165	1.50
200	360	320	0.023	2.30
250	460	420	0.03	3.40
315	540	500	0.037	4.60
400	540	500	0.037	4.60

* ØU = Ceiling grid opening

Materials and finish

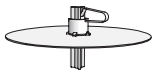
Material: Galvanised steel
Standard finish: Powder-coated
Standard colour: White RAL 9010, gloss 30

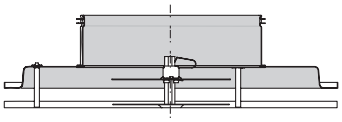
The diffuser is available in other colours. Please contact Lindab's sales department for further information.

Plain diffuser LCA

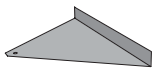
Accessories

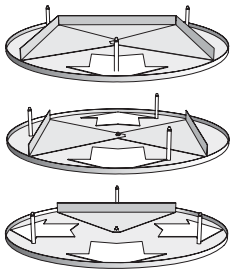
DRZ - Balancing damper



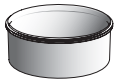


Blending profiles (set)

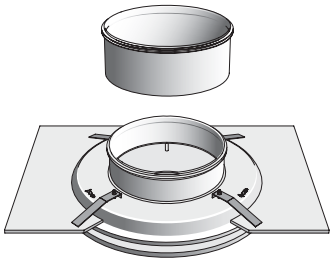




MBZ - Extension piece



DDZ - Mounting brackets (set)

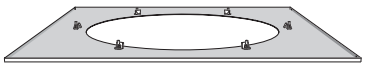


Order code - accessoreies

Product	aaa	bbb
Type		
Size		

Example: DRZ-200

LM - Module plate



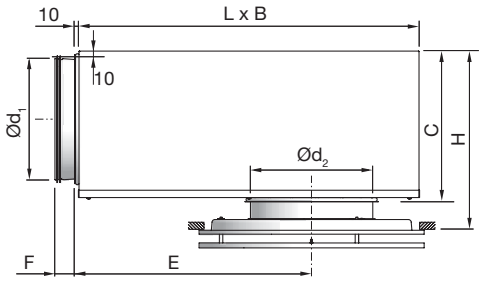
Order code - module plate

Product	LM	a	LCA	ccc
Type				
Ceiling system				
Diffuser				
Size				

Example: LM-1-LCA-200
Ceiling system - see introductory summary

MBB - Plenum box

LCA + MBB



LCA + MBB duct Ød1 mm	LCA Ød2 mm	B mm	C mm	E mm	F mm	H* mm	L mm
100	100	260	159	216	50	180 - 220	310
100	125	260	159	216	50	180 - 220	310
100	160	260	159	216	50	180 - 220	310
125	125	310	184	262	50	205 - 245	376
125	160	310	184	262	50	205 - 245	376
125	200	310	184	262	50	205 - 245	376
160	160	380	220	323	50	239 - 279	459
160	200	380	220	323	50	239 - 279	459
160	250	380	220	323	50	239 - 279	459
200	200	460	259	396	70	280 - 320	565
200	250	460	259	396	70	280 - 320	565
200	315	460	259	396	70	280 - 320	565
250	250	540	309	486	70	330 - 370	698
250	315	540	309	486	70	330 - 370	698
250	400	540	309	486	70	330 - 370	698
315	315	540	373	646	70	395 - 435	858
315	400	540	373	646	70	395 - 435	858

* Using accessory MBZ the H dimension will increase:
$Ød_2$ = 100 - 200 mm => H +40 mm
$Ød_2$ = 250 - 315 mm => H +60 mm
$Ød_2$ = 400 mm => H +80 mm

Order code

Product	MBB	aaa	bbb	c
Type				
MBB				
Duct connection $Ød_1$				
Ø100-315				
Diffuser dimension $Ød_2$				
Ø100-400				
Function				
S = Supply air				
E = Exhaust				

Example: LCA-200+MBB-200-200-S

Plain diffuser

LCA

Technical data

Capacity

Air flow q_v [l/s] and [m^3/h], total pressure Δp_t [Pa], throw $l_{0.2}$ [m] and sound power 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 $L_{WA}+K_{ok}$. K_{ok} values are specified in charts beneath the diagrams on the following pages.

Quick selection, supply air

LCA + MBB		$\Delta p_t \geq 50$ Pa		$\Delta p_t \geq 50$ Pa	
duct	LCA	30 dB(A)		35 dB(A)	
$Ød_1$	$Ød_2$	l/s	m^3/h	l/s	m^3/h
100	100	27	97	33	119
100	125	31	112	38	137
100	160	40	144	49	176
125	125	42	151	50	180
125	160	53	191	64	230
125	200	59	212	70	252
160	160	60	216	73	263
160	200	70	252	88	317
160	250	94	338	115	414
200	200	98	353	118	425
200	250	106	382	129	464
200	315	133	479	159	572
250	250	116	418	141	508
250	315	136	490	167	601
250	400	139	500	182	655
315	315	153	551	183	659
315	400	169	608	200	720

Sound attenuation

Sound attenuation of the diffuser ΔL from duct to room, including end reflection, see table below.

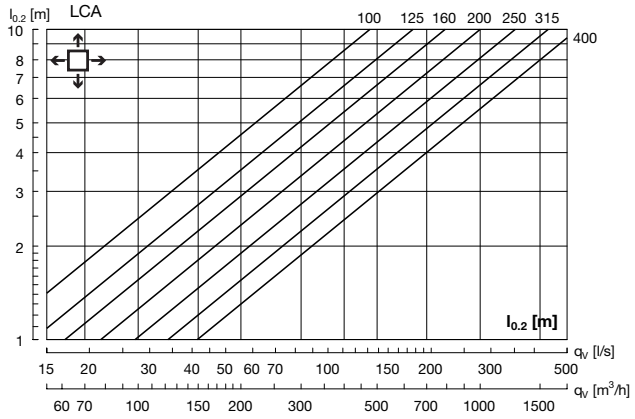
LCA + MBB									
duct	LCA	Centre frequency Hz							
$Ød_1$	$Ød_2$	63	125	250	500	1K	2K	4K	8K
100	100	18	17	9	19	20	23	22	23
100	125	20	17	6	16	19	20	18	22
100	160	21	17	5	12	19	20	18	21
125	125	17	14	9	19	15	21	18	20
125	160	13	13	9	18	18	18	18	20
125	200	14	12	7	15	16	18	17	19
160	160	18	17	11	16	21	19	20	21
160	200	15	14	9	20	21	20	20	20
160	250	16	16	7	17	13	18	19	20
200	200	14	11	8	15	21	18	20	18
200	250	13	10	8	16	20	17	19	17
200	315	15	9	6	14	17	17	18	17
250	250	16	9	9	17	20	19	19	19
250	315	15	8	9	16	18	16	18	18
250	400	13	6	6	14	16	17	17	17
315	315	8	10	10	16	20	19	18	23
315	400	8	10	10	13	19	19	17	21

Balancing

Balancing data is contained in a seperate brochure.

Throw $l_{0.2}$

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



Correction throw $l_{0.2}$

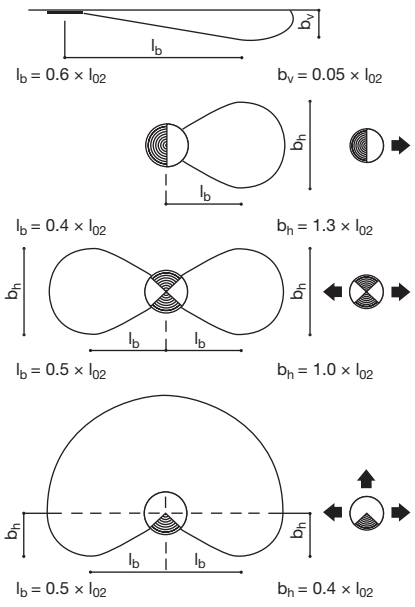
LCA Ød	1 - ways	2 - ways	3 - ways
100	2.4	1.8	1.4
125	2.3	1.8	1.3
160	2.3	1.8	1.3
200	2.3	1.9	1.3
250	2.3	2	1.3
315	2.3	2	1.3
400	2.2	2.1	1.3

Air jet distribution

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.

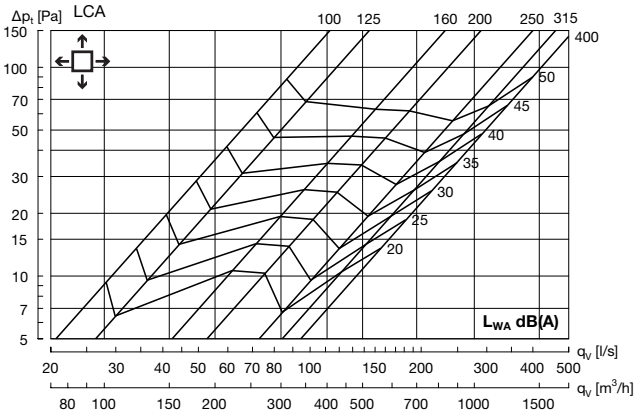


Plain diffuser

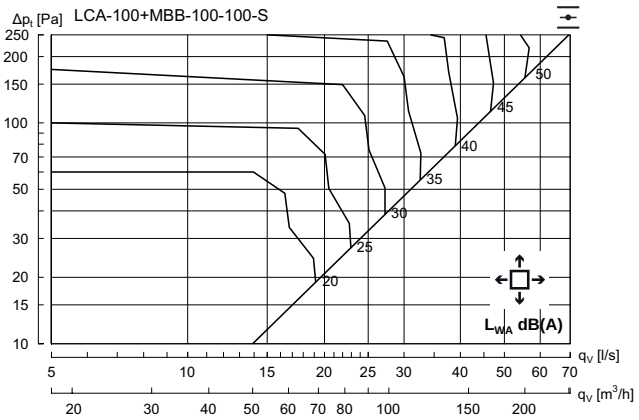
LCA

Technical data

LCA without box - Supply air



LCA 100 + MBB - Supply air



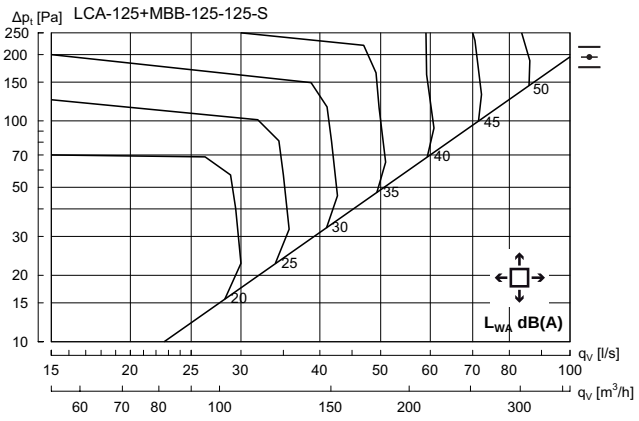
Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	9	7	3	-5	-5	-12	-16	-23

Plain diffuser

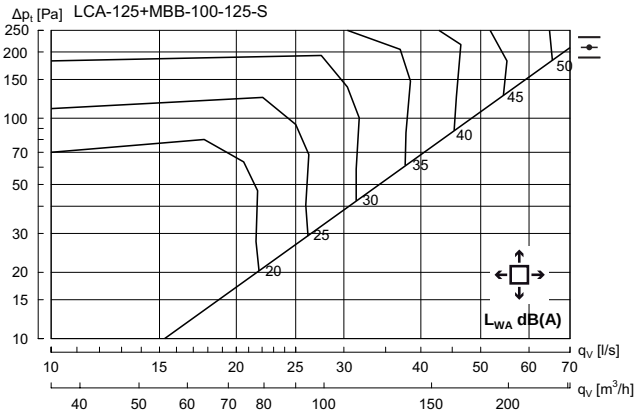
LCA

Technical data

LCA 125 + MBB - Supply air

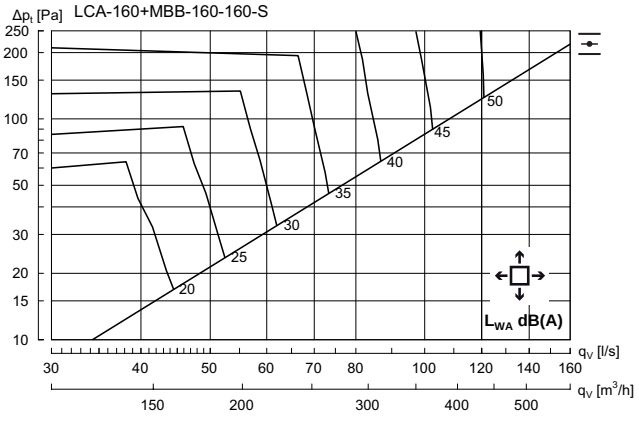


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	12	6	1	-4	-4	-13	-20	-28

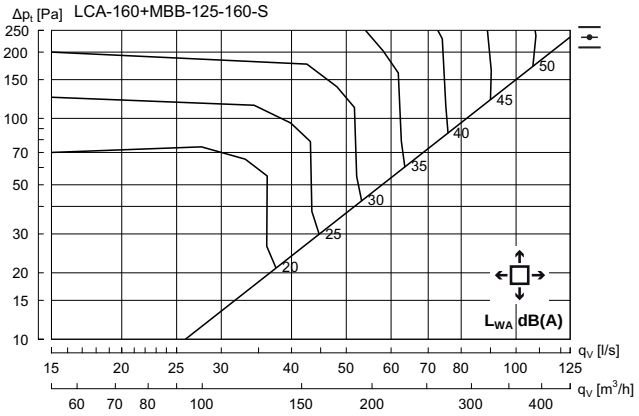


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	11	7	3	-4	-5	-14	-18	-24

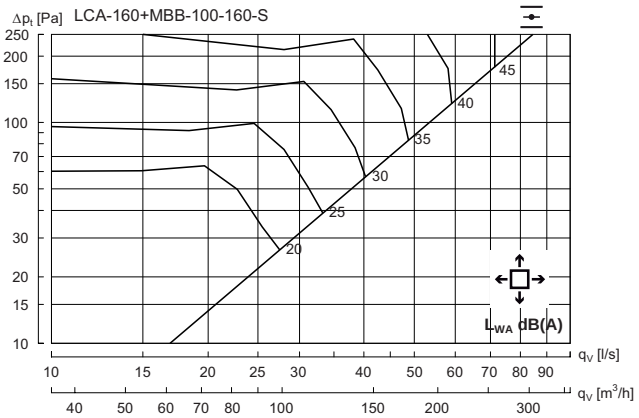
LCA 160 + MBB - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	11	11	0	-2	-7	-15	-22	-28



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	13	8	1	-3	-6	-12	-17	-25



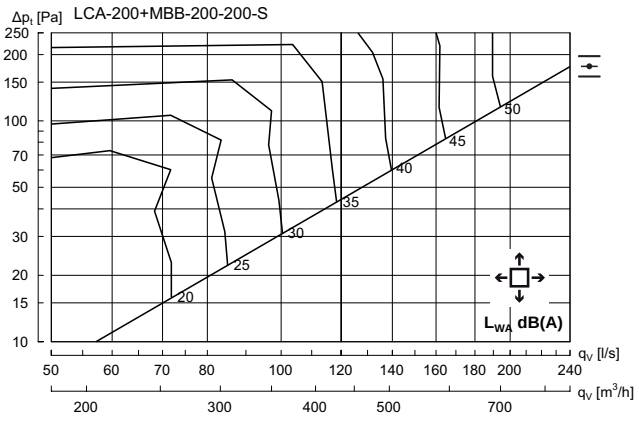
Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	12	5	1	-2	-6	-10	-14	-20

Plain diffuser

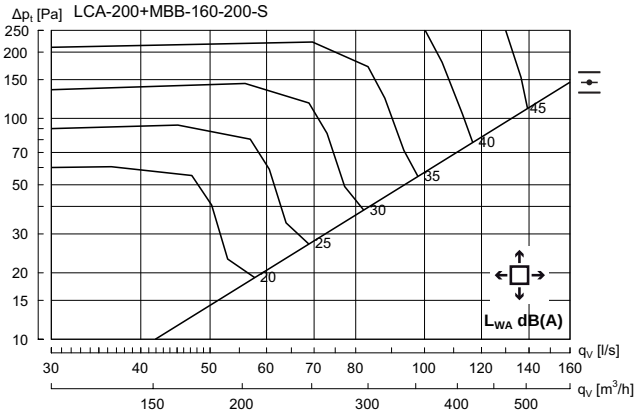
LCA

Technical data

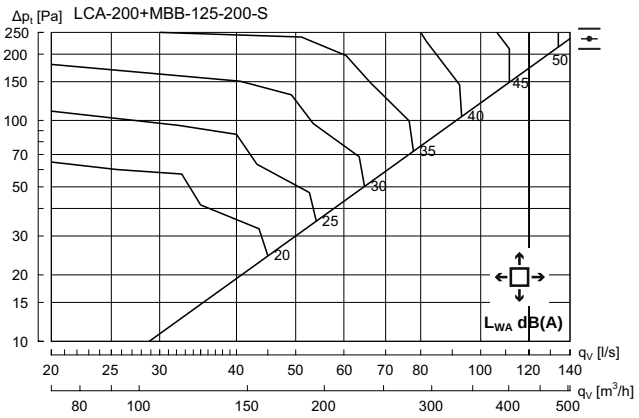
LCA 200 + MBB - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	12	6	-1	-1	-5	-15	-21	-26

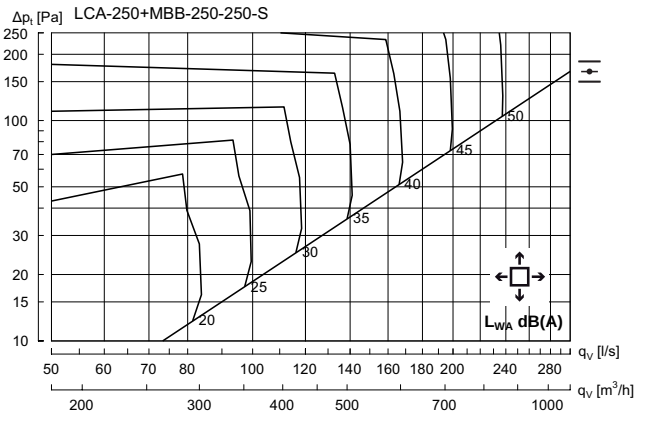


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	12	9	0	-2	-6	-12	-19	-24

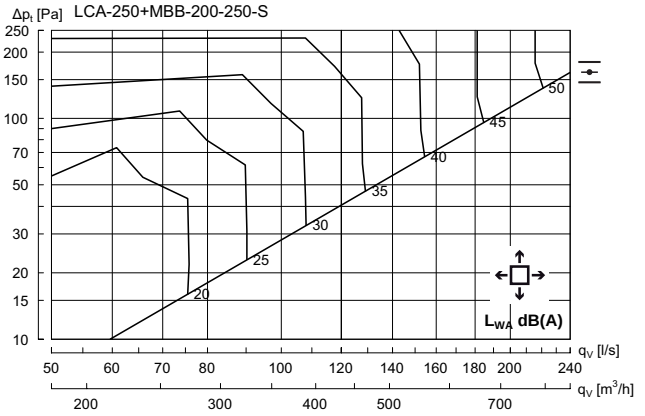


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	12	7	1	-3	-6	-11	-15	-21

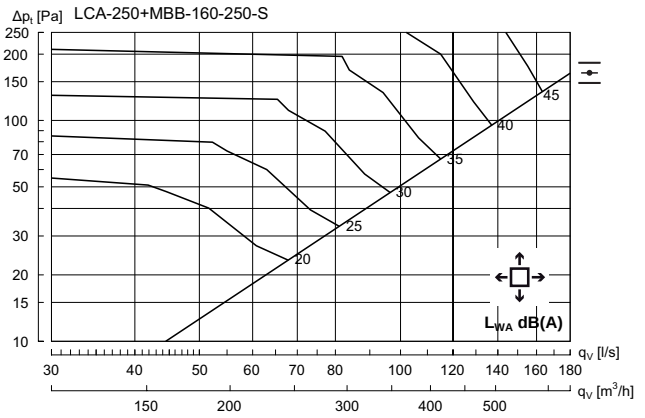
LCA 250 + MBB - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	12	3	-4	0	-4	-17	-24	-31



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	12	6	-2	-1	-5	-14	-19	-23



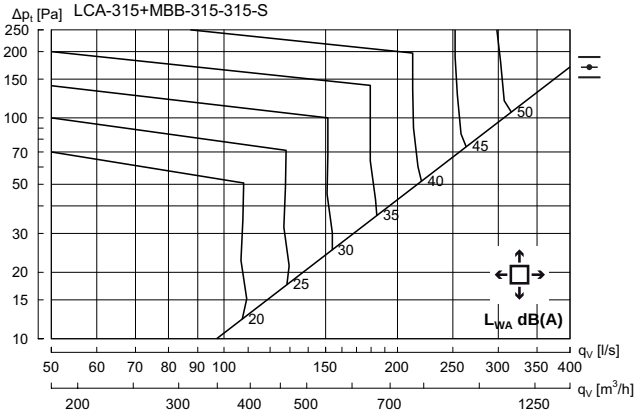
Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	9	7	-2	-3	-5	-10	-15	-21

Plain diffuser

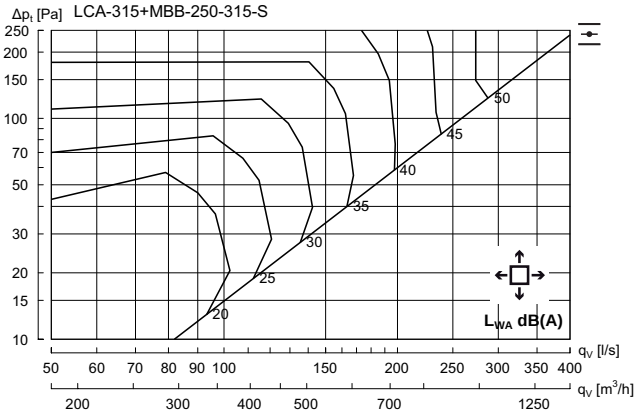
LCA

Technical data

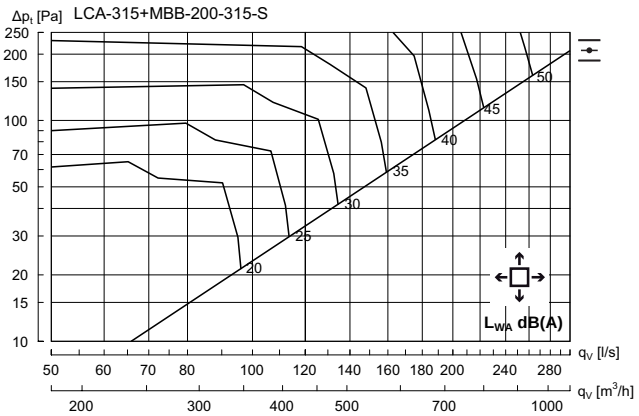
LCA 315 + MBB - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	13	5	-2	-1	-4	-17	-25	-36

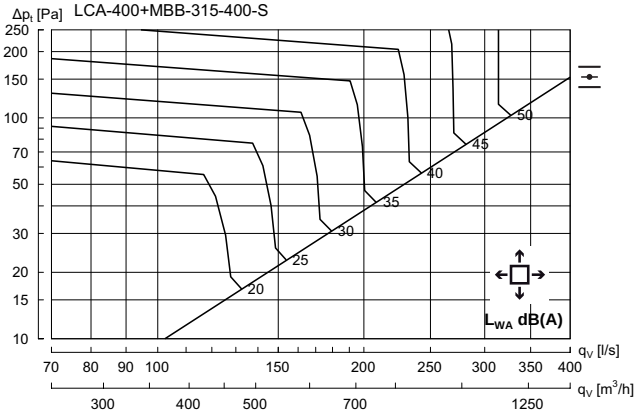


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	14	5	-2	-2	-4	-13	-19	-26

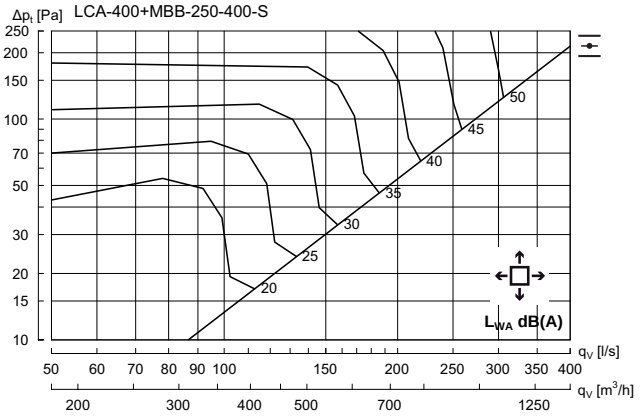


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	13	6	-2	-3	-4	-11	-17	-22

LCA 400 + MBB - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	14	6	1	-1	-6	-16	-21	-27



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	12	7	0	-2	-6	-12	-19	-26

Correction sound power level (L_{WA}) and pressure loss (Δp_t)

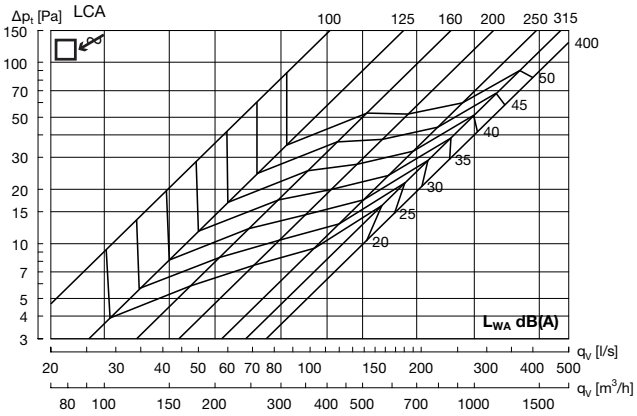
LCA + MBB duct $Ød_1$	LCA $Ød_2$	1 - ways L_{WA}	1 - ways Δp_t	2 - ways L_{WA}	2 - ways Δp_t	3 - ways L_{WA}	3 - ways Δp_t
100	100	+ 12	x 1,5	+ 8	x 1,2	+ 4	x 1,1
100	125	+ 10	x 1.3	+ 4	x 1.1	+ 2	x 1,05
100	160	+ 9	x 1.3	+ 2	x 1.1	+ 1	x 1
125	125	+ 12	x 1,5	+ 8	x 1,2	+ 4	x 1,1
125	160	+ 14	x 1,5	+ 7	x 1,2	+ 2	x 1,1
125	200	+ 9	x 1,4	+ 6	x 1,2	+ 3	x 1,1
160	160	+ 16	x 1,8	+ 9	x 1,3	+ 4	x 1,1
160	200	+ 21	x 1,9	+ 10	x 1,3	+ 4	x 1,1
160	250	+ 12	x 1,4	+ 6	x 1,1	+ 2	x 1,05
200	200	+ 24	x 2,5	+ 10	x 1,5	+ 5	x 1,2
200	250	+ 18	x 1,9	+ 7	x 1,2	+ 2	x 1,05
200	315	+ 17	x 1,6	+ 9	x 1,2	+ 3	x 1,1
250	250	+ 21	x 2,3	+ 10	x 1,4	+ 5	x 1,1
250	315	+ 20	x 1,9	+ 11	x 1,2	+ 5	x 1,2
250	400	+ 10	x 1,5	+ 6	x 1,2	+ 0	x 1
315	315	+ 21	x 2,4	+ 12	x 1,6	+ 6	x 1,2
315	400	+ 21	x 1,8	+ 8	x 1,5	+ 3	x 1,2

Plain diffuser

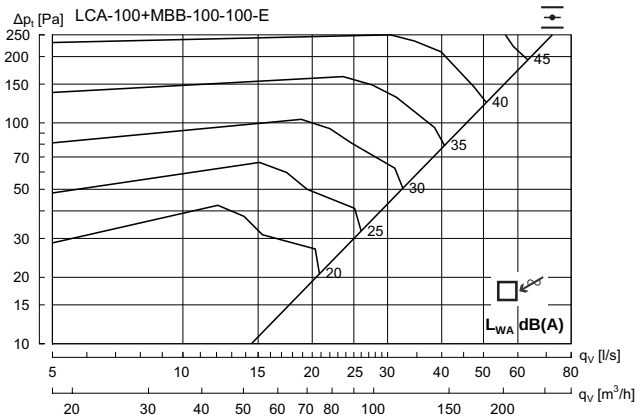
LCA

Technical data

LCA without box - Exhaust air



LCA 100 + MBB - Exhaust air



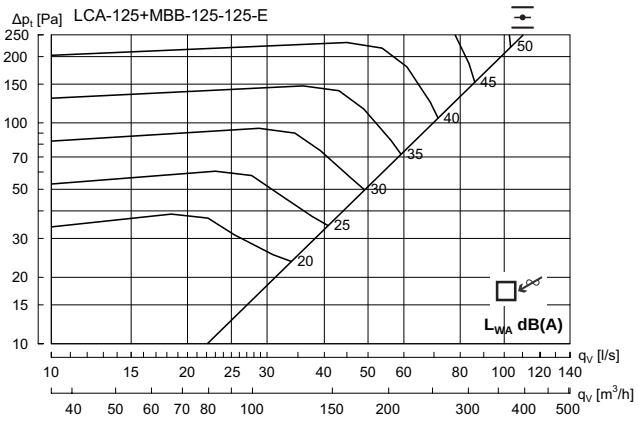
Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	13	1	3	-2	-7	-10	-15	-22

Plain diffuser

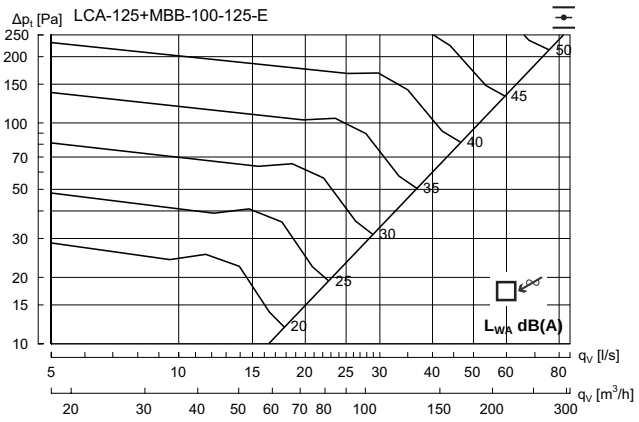
LCA

Technical data

LCA 125 + MBB - Exhaust air

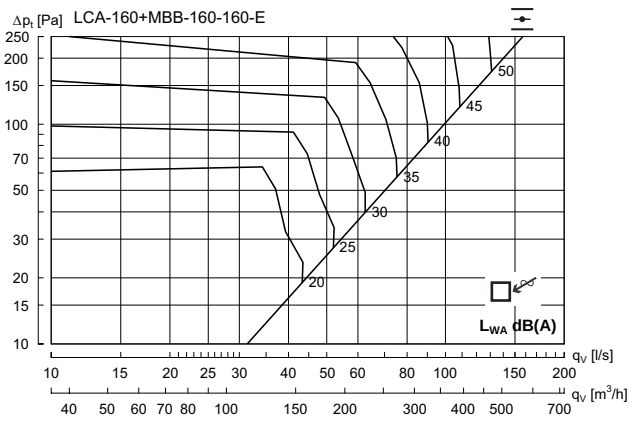


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	13	4	1	-2	-5	-12	-15	-22

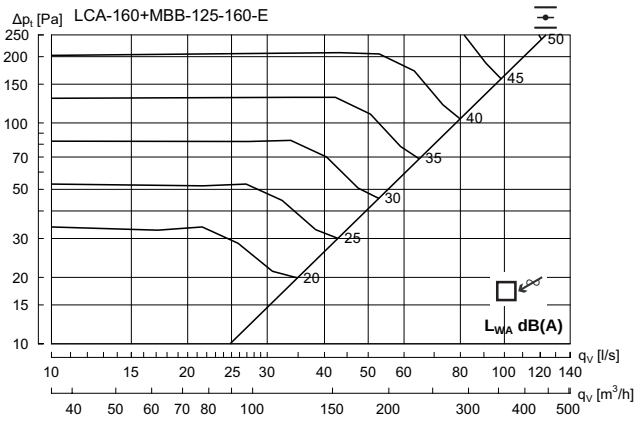


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	13	0	4	-2	-8	-11	-16	-22

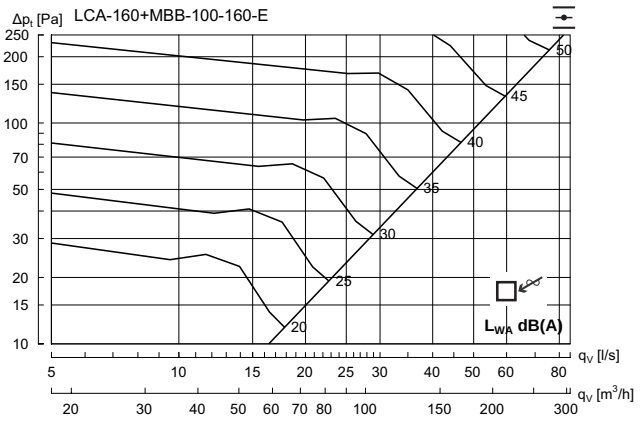
LCA 160 + MBB - Exhaust air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	16	6	1	-4	-5	-11	-17	-24



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	12	6	2	-2	-7	-12	-14	-19



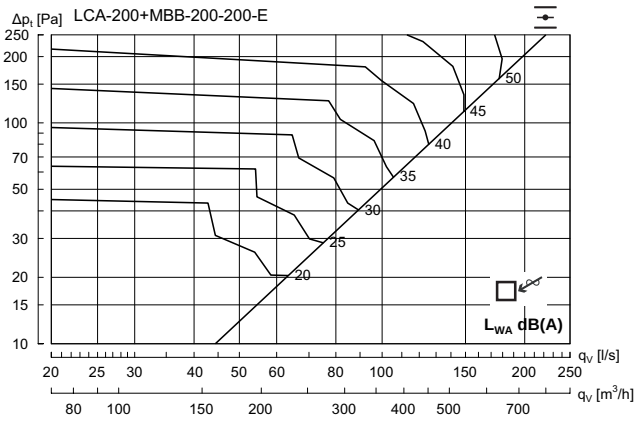
Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	11	-1	5	-2	-9	-13	-18	-24

Plain diffuser

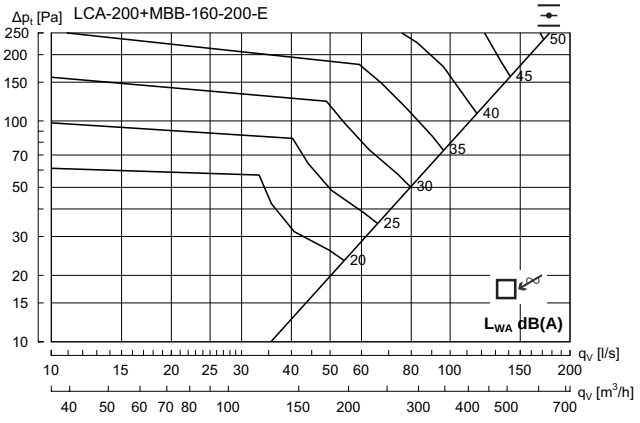
LCA

Technical data

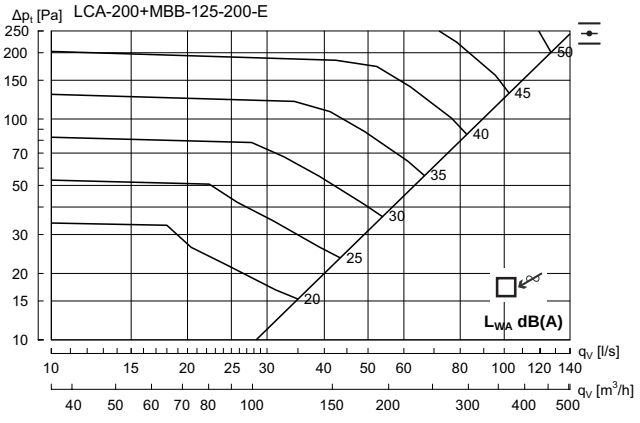
LCA 200 + MBB - Exhaust air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	14	6	0	-3	-5	-10	-19	-27

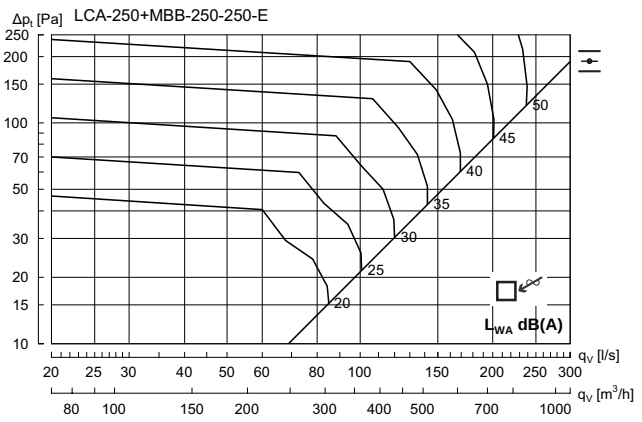


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	16	7	-1	-4	-6	-10	-14	-20

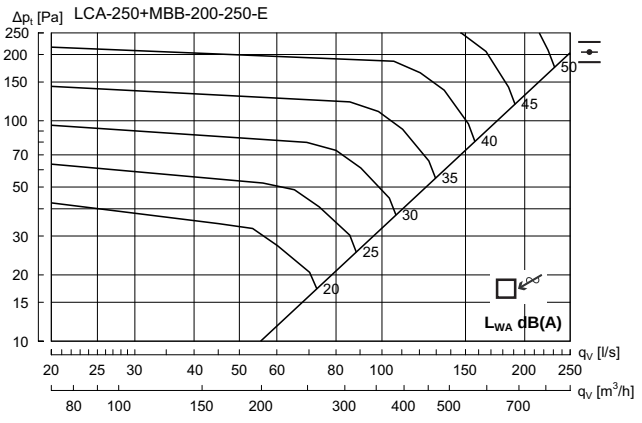


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	11	3	0	-2	-5	-11	-14	-21

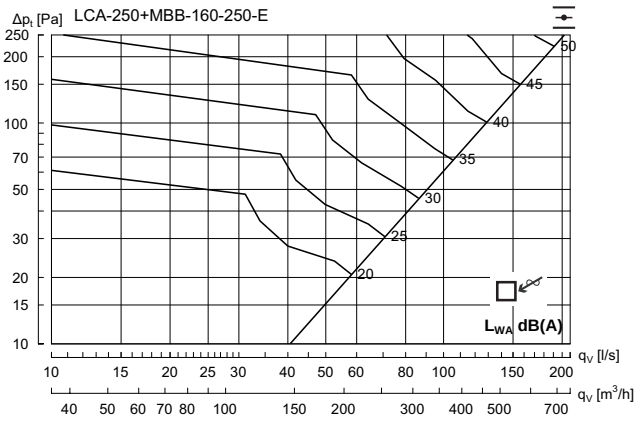
LCA 250 + MBB - Exhaust air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	12	4	-1	-3	-3	-12	-19	-30



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	13	3	-1	-3	-4	-11	-15	-24



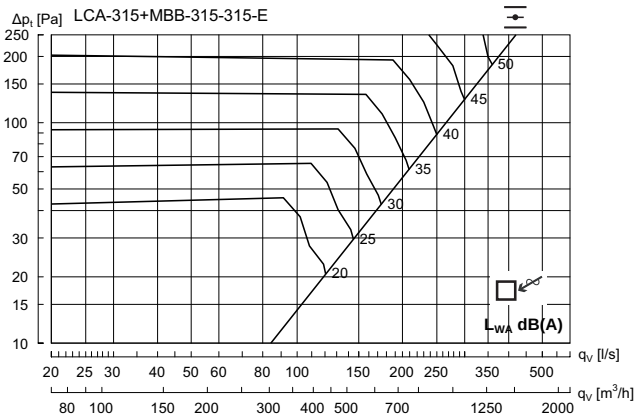
Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	14	6	0	-3	-5	-11	-15	-19

Plain diffuser

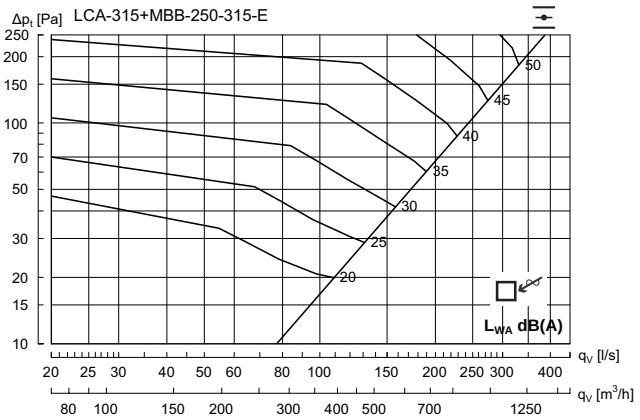
LCA

Technical data

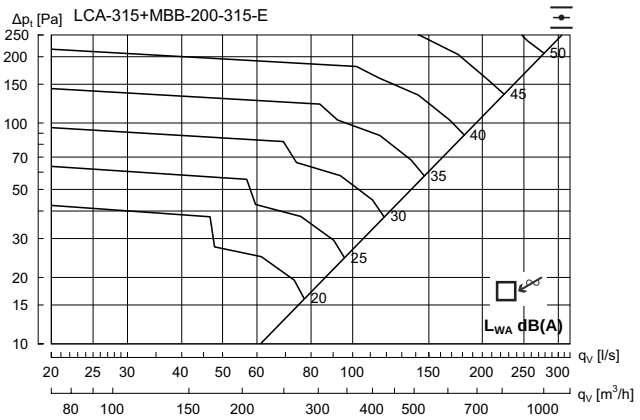
LCA 315 + MBB - Exhaust air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	13	5	2	-2	-6	-12	-17	-27

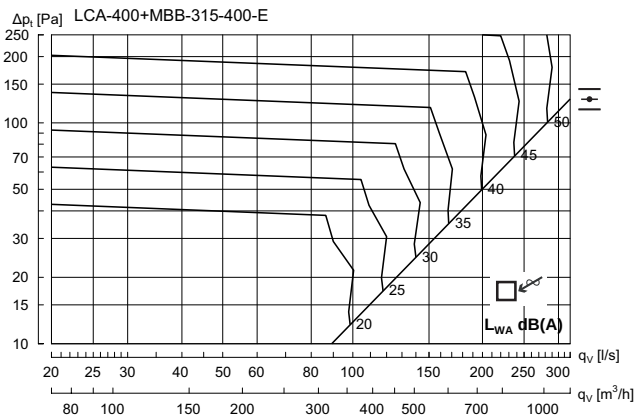


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	10	5	1	-2	-6	-10	-16	-24

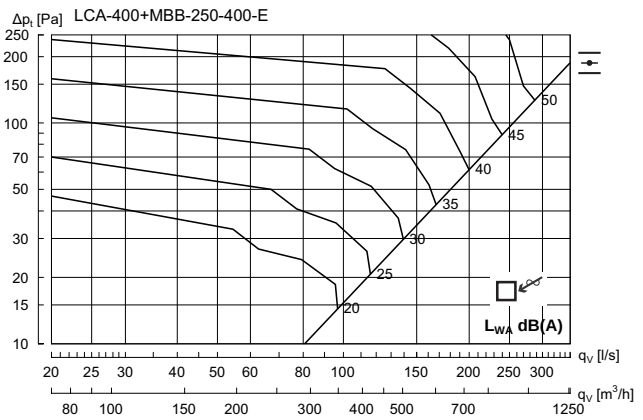


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	14	5	0	-2	-6	-12	-14	-22

LCA 400 + MBB - Exhaust air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	10	5	0	0	-6	-15	-20	-27



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	12	5	1	-1	-7	-12	-16	-24

Plain diffuser

CRL

Description

CRL is a circular diffuser with an unperforated adjustable face plate. CRL can be used both for supply and exhaust air. The diffuser can be switched between horizontal and vertical supply air, and is therefore suitable for the horizontal supply of cooled air or vertical supply of heated air. Installing a CRL diffuser in a plenum box type MBB can help to achieve a stable airflow to the diffuser as well as realise the potential for individual adjustment. It is also possible to install a damper directly in the diffuser to enable adjustment without a box.

- Suitable for both supply and exhaust air
- Suitable for horizontal or vertical supply air patterns
- A damper can be installed on the diffuser to achieve adjustment

Maintenance

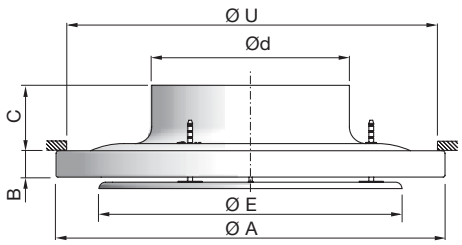
The face plate can be removed to enable cleaning of internal parts or to gain access to the duct or plenum box. The visible parts off the diffuser can be wiped with a damp cloth.

Order code

Product	**CRL**	**aaa**
Type		
CRL		
Connection dim. Ød		
Ød 100-400		

Example: CRL-200

Dimensions

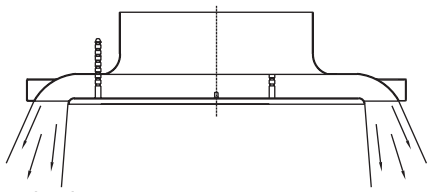


CRL Ød	ØA	B	C	ØE	ØU*	Weight
mm	mm	mm	mm	mm	mm	kg
100	188	15	60	146	170	0.30
125	238	20	65	180	210	0.50
160	288	25	65	220	255	0.60
200	388	28	72	300	355	1.10
250	488	33	82	380	390	1.60
315	588	33	97	490	465	2.50
400	720	40	100	590	670	3.80

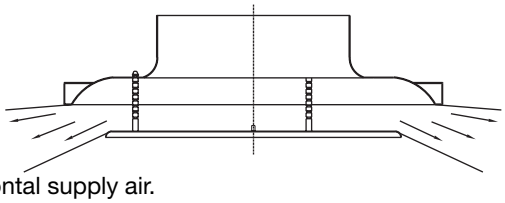
* ØU = Ceiling grid opening

Dispersal patterns

CRL is supplied with vertical supply air as standard.
The dispersal pattern can be changed to horizontal supply air by moving the face plate.



Vertical supply air.



Horizontal supply air.

Materials and finish:

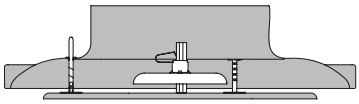
Grille box: Aluminium
Face plate: Galvanised steel
Standard finish: Powder-coated
Standard colour: White RAL 9010, gloss 30

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

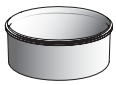
Plain diffuser CRL

Accessories

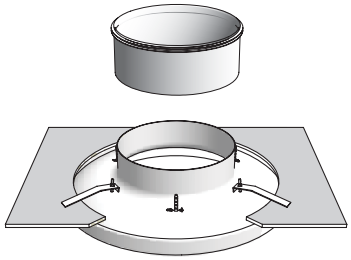
CAZ - Balancing damper



MBZ - Extension piece



DCZ - Mounting brackets (set)



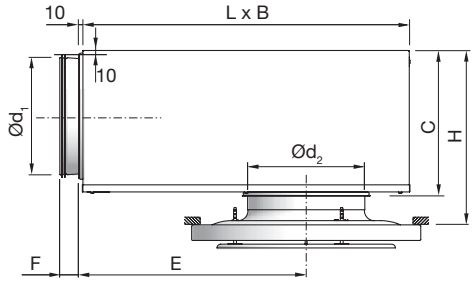
Order code - accessoreies

Product	aaa	bbb
Type		
Size		

Example: CAZ-125

MBB - Plenum box

CRL + MBB



CRL + MBB							
duct	CRL	B	C	E	F	H*	L
Ød1 mm	Ød2 mm	mm	mm	mm	mm	mm	mm
100	100	260	159	216	50	175 - 210	310
100	125	260	159	216	50	175 - 205	310
100	160	260	159	216	50	175 - 205	310
125	125	310	184	262	50	200 - 230	376
125	160	310	184	262	50	200 - 230	376
125	200	310	184	262	50	210 - 245	376
160	160	380	220	323	50	235 - 265	459
160	200	380	220	323	50	245 - 280	459
160	250	380	220	323	50	250 - 290	459
200	200	460	259	396	70	285 - 320	565
200	250	460	259	396	70	290 - 332	565
200	315	460	259	396	70	290 - 345	565
250	250	540	309	486	70	340 - 380	698
250	315	540	309	486	70	340 - 395	698
250	400	540	309	486	70	370 - 400	698
315	315	540	373	646	70	405 - 460	858
315	400	540	373	646	70	435 - 465	858

USING CRL + MBB => ALWAYS USE MBZ

* Using accessory MBZ the H dimension will increase:

$Ød_2$ = 100 - 200 mm => H +40 mm
$Ød_2$ = 250 - 315 mm => H +60 mm
$Ød_2$ = 400 mm => H +80 mm

Order code

Product	MBB	aaa	bbb	c
Type				
MBB				
Duct connection $Ød_1$				
Ø100-315				
Diffuser dimension $Ød_2$				
Ø100-400				
Function				
S = Supply air				
E = Exhaust				

Example: CRL-200+MBB-160-200-S

Plain diffuser

CRL

Technical data

Capacity

Air flow q_v [l/s] and [m³/h], total pressure Δp_t [Pa], throw $l_{0.2}$ [m] and sound power 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 $L_{WA}+K_{ok}$. K_{ok} values are specified in charts beneath the diagrams on the following pages. K_{ok} values for CRL without a box are available on request.

Quick selection, supply air

CRL + MBB duct Ød1	CRL Ød2	$\Delta p_t \geq 50$ Pa 30 dB(A) l/s	m³/h	$\Delta p_t \geq 50$ Pa 35 dB(A) l/s	m³/h
100	100	26	94	31	112
100	125	35	126	42	151
100	160	42	151	50	180
125	125	46	166	54	194
125	160	58	209	68	245
125	200	62	223	75	270
160	160	67	241	81	292
160	200	86	310	105	378
160	250	96	346	121	436
200	200	107	385	127	457
200	250	135	486	160	576
200	315	146	526	177	637
250	250	151	544	183	659
250	315	161	580	215	774
250	400	185	666	252	907
315	315	206	742	263	947
315	400	227	817	309	1112

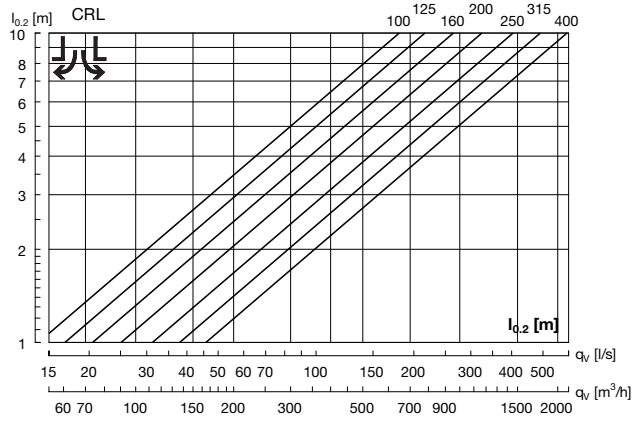
Sound attenuation

Sound attenuation of the diffuser ΔL from duct to room, including end reflection, see table below.

CRL + MBB duct Ød1	CRL Ød2	Centre frequency Hz 63	125	250	500	1K	2K	4K	8K
100	100	20	17	7	20	19	20	20	22
100	125	21	16	6	18	19	18	19	21
100	160	21	16	5	15	17	18	18	18
125	125	18	13	7	20	12	19	19	20
125	160	15	14	8	19	12	17	17	19
125	200	14	12	6	16	14	16	17	16
160	160	18	17	10	18	16	18	21	20
160	200	15	14	7	19	17	18	19	19
160	250	15	15	4	15	13	14	16	18
200	200	14	10	7	14	19	16	20	17
200	250	15	9	5	14	19	16	17	16
200	315	13	8	4	11	16	15	16	15
250	250	16	8	7	16	18	18	18	17
250	315	11	7	6	16	17	17	16	16
250	400	15	6	5	10	14	16	15	15
315	315	8	10	9	14	18	18	17	21
315	400	8	8	8	11	16	17	16	19

Throw $l_{0.2}$

The throw is specified at a terminal velocity of 0.2 m/s. Diagram below shows throw $l_{0.2}$ for horizontal supply air.



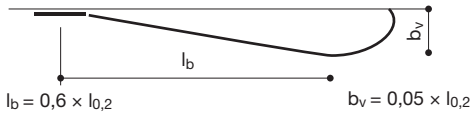
Correction throw $l_{0.2}$ for vertical supply air

CRL Ød	Correction factor
100	3,1
125	2,7
160	2,7
200	2,7
250	2,6
315	2,4
400	2,3

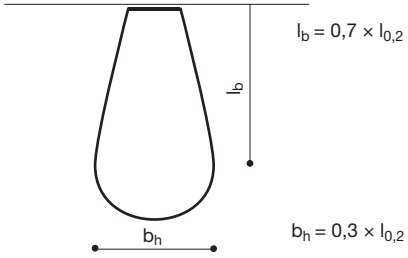
Air jet distribution

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

Horizontal supply air pattern



Vertical supply air pattern

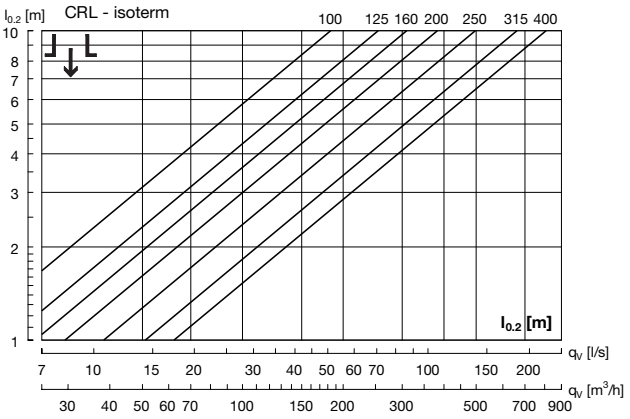


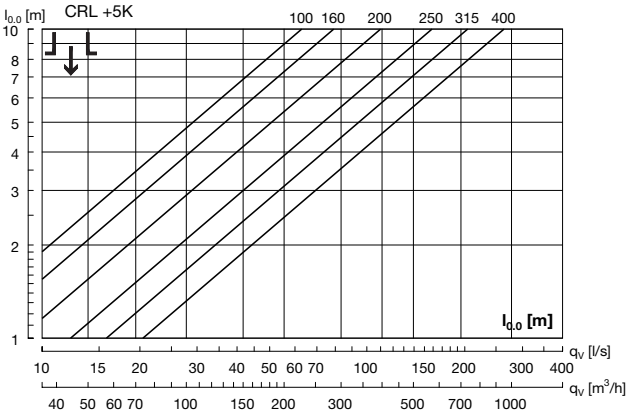
Plain diffuser CRL

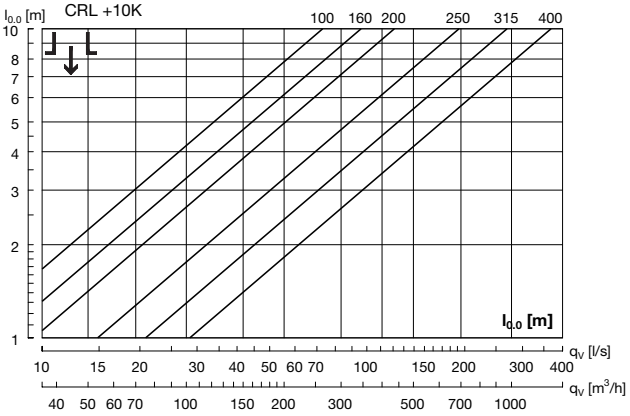
Technical data

Throw $l_{0.2}$ / turning point $l_{0.0}$

Throw $l_{0.2}$ [m] is specified at a speed of 0.2 m/s. Turning point $l_{0.0}$ [m] is specified for +5 K, +10 K respectively.

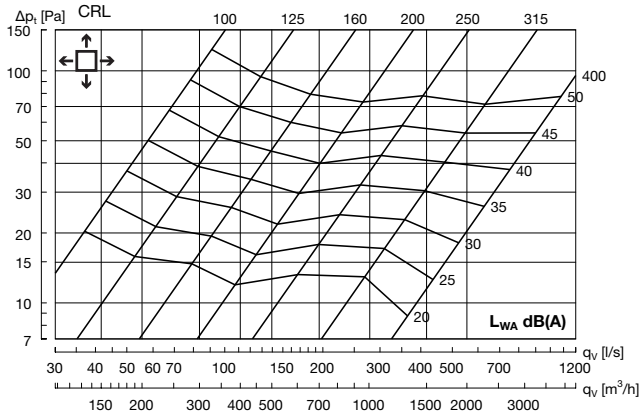




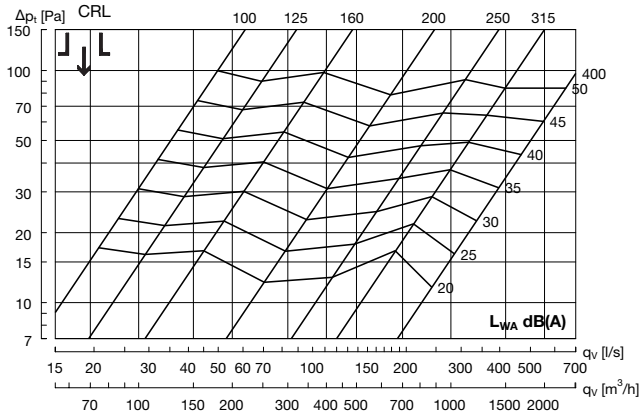


CRL without box - Supply air

Supply air - horizontal



Supply air - vertical

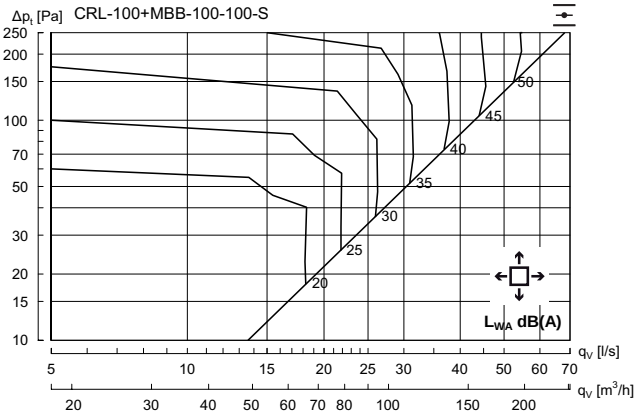


Plain diffuser

CRL

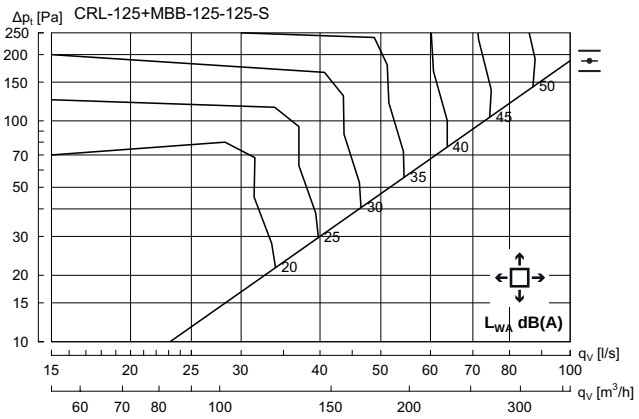
Technical data

CRL 100 + MBB - Supply air

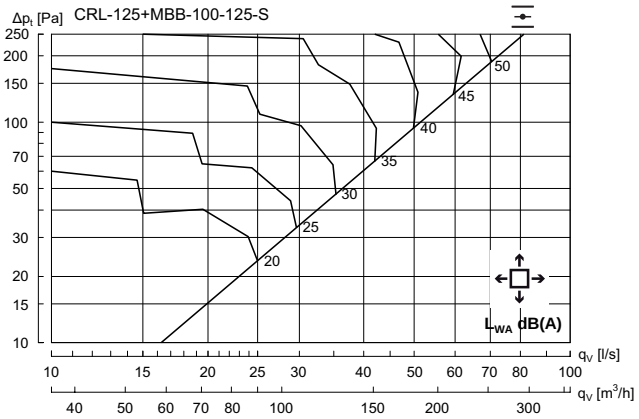


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	12	8	5	-7	-8	-14	-17	-22

CRL 125 + MBB - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	11	9	3	-5	-6	-14	-20	-24

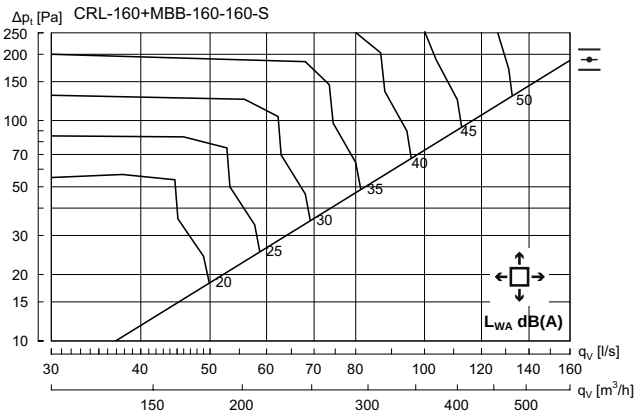


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	13	8	3	-5	-7	-11	-15	-19

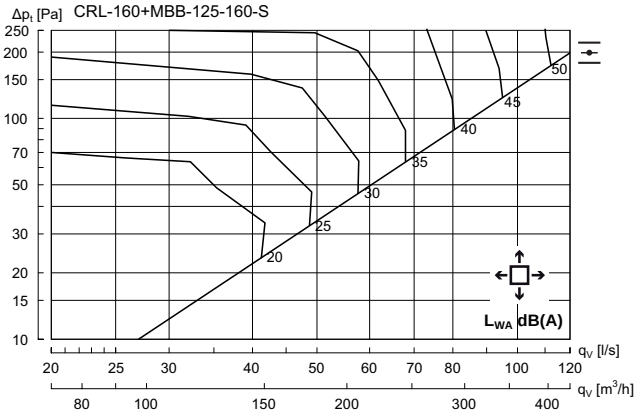
Plain diffuser CRL

Technical data

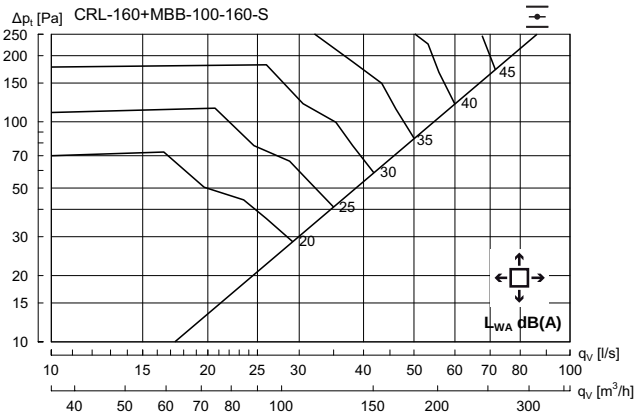
CRL 160 + MBB - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	11	12	3	-7	-7	-15	-20	-23

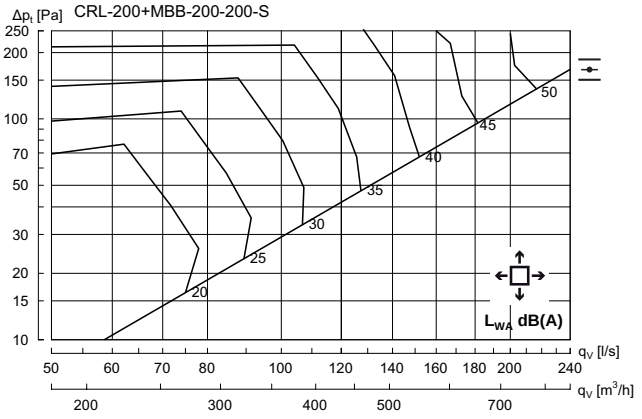


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	12	8	3	-5	-6	-11	-17	-22

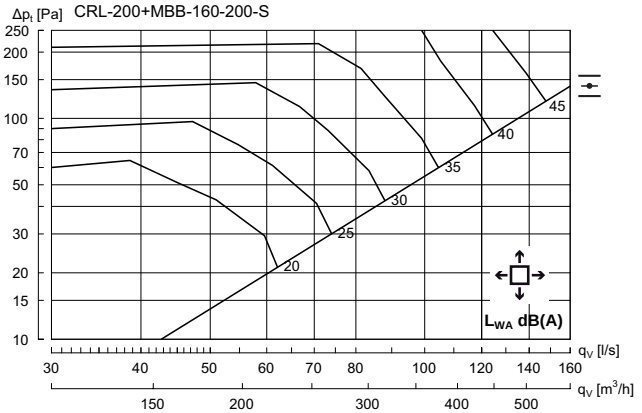


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	9	3	1	-3	-5	-9	-15	-19

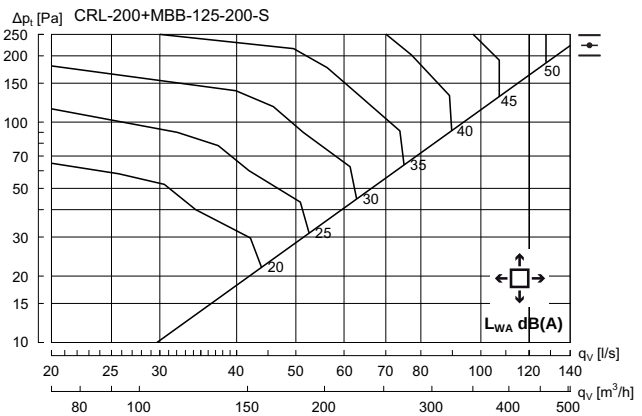
CRL 200 + MBB - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	12	11	1	-3	-7	-15	-20	-24



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	12	8	1	-4	-5	-10	-18	-22



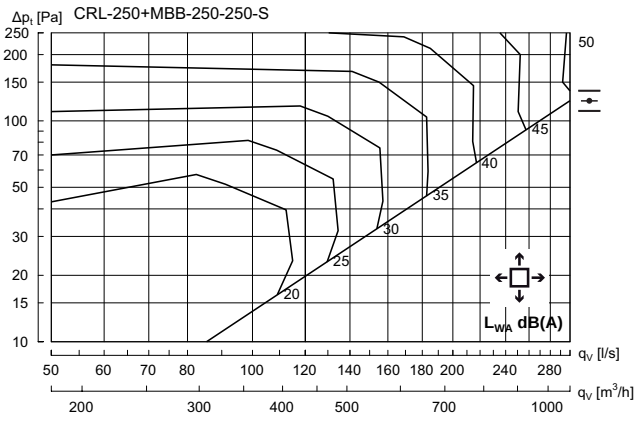
Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	10	5	1	-4	-5	-10	-16	-20

Plain diffuser

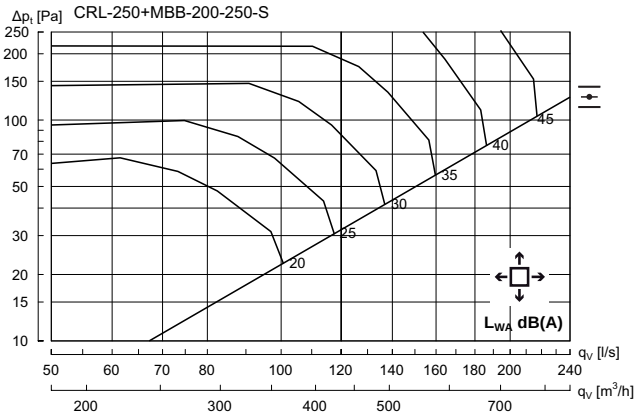
CRL

Technical data

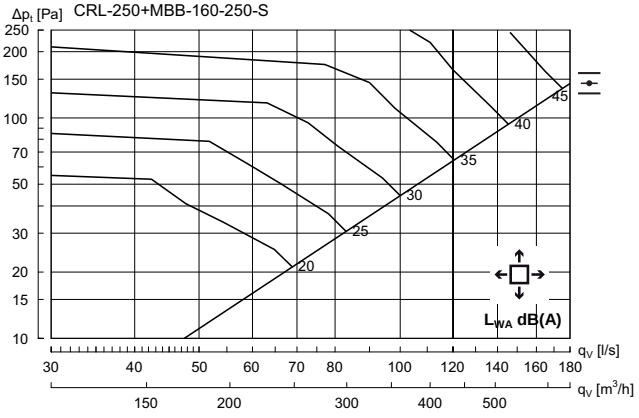
CRL 250+ MBB - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	15	7	0	-2	-6	-12	-16	-21

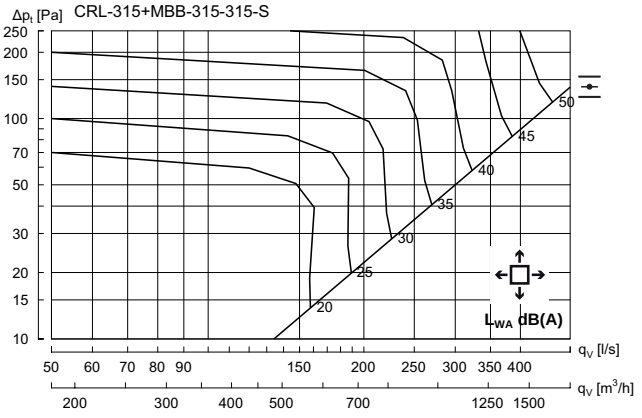


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	11	7	-1	-2	-5	-12	-17	-22

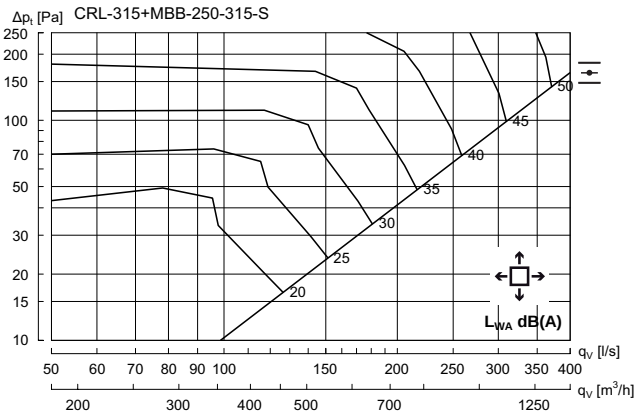


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	11	6	1	-3	-5	-10	-15	-21

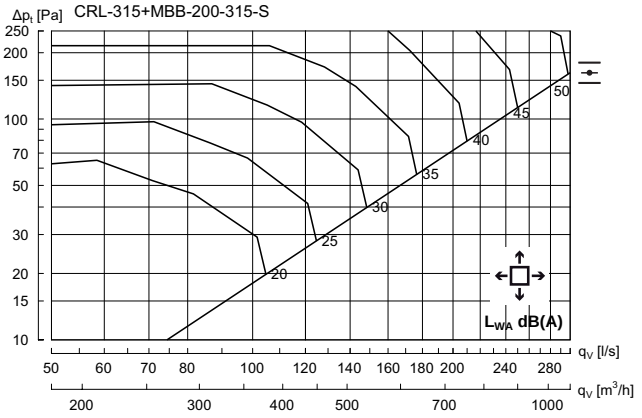
CRL 315 + MBB - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	15	4	1	-2	-6	-13	-17	-16



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	13	6	-1	-2	-5	-12	-17	-23

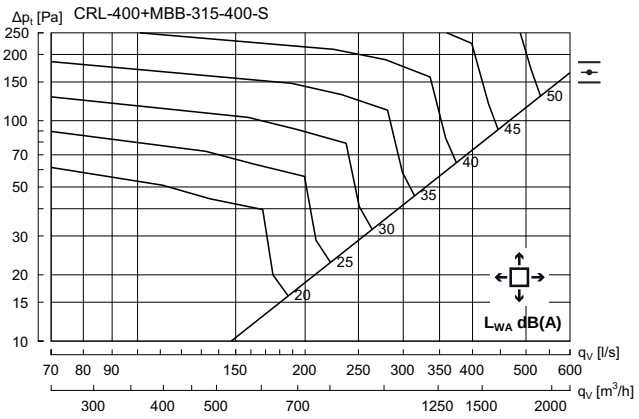


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	11	7	0	-3	-6	-10	-16	-21

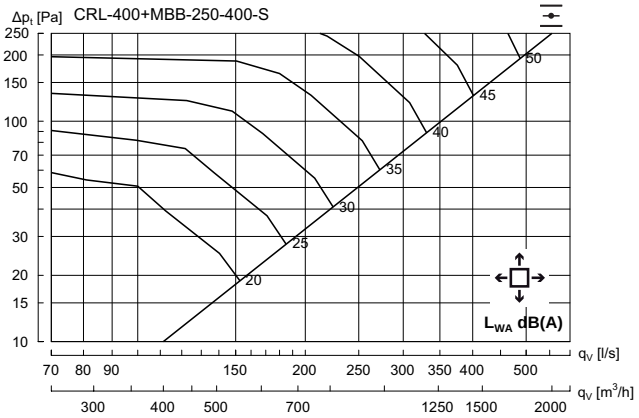
Plain diffuser CRL

Technical data

CRL 400+ MBB - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	11	3	0	-3	-5	-10	-14	-23



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	8	4	-1	-3	-4	-10	-14	-20

CRL + MBB - Supply air

Correction vertical supply air, sound power level (L_{WA}) and pressure loss (Δp_t)

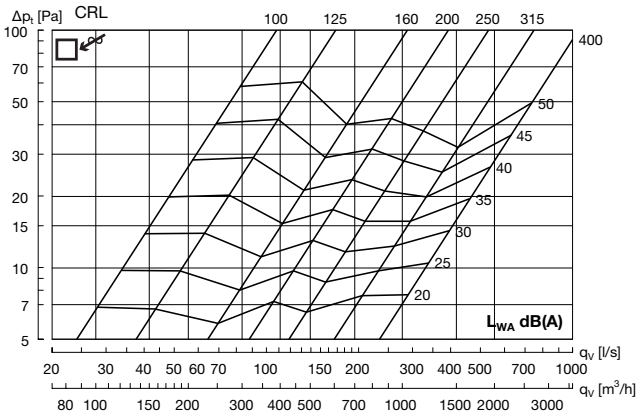
CRL + MBB		Correction factor Vertical supply air	
duct $Ød_1$	CRL $Ød_2$	L_{WA}	Δp_t
100	100	+ 6	x 1,3
100	125	+ 8	x 1,3
100	160	+ 3	x 1,1
125	125	+ 1	x 1
125	160	+ 8	x 1,2
125	200	+ 1	x 1
160	160	+ 10	x 1,5
160	200	+ 3	x 1,1
160	250	+ 0	x 1
200	200	+ 7	x 1,3
200	250	+ 0	x 1
200	315	+ 1	x 1
250	250	+ -2	x 1
250	315	+ 0	x 1
250	400	+ 0	x 1,1
315	315	+ -2	x 1,1
315	400	+ 3	x 1,2

Plain diffuser

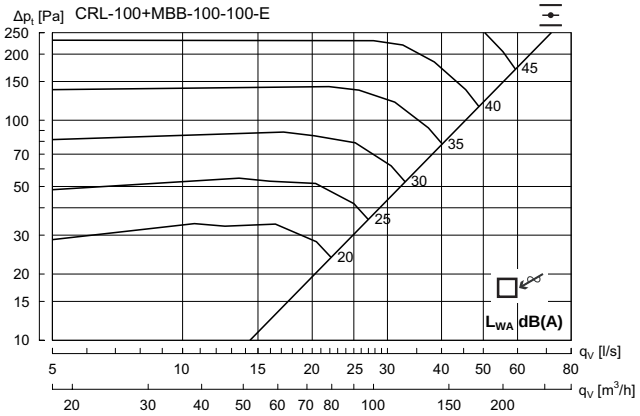
CRL

Technical data

CRL without box - Exhaust air



CRL 100 + MBB - Exhaust air

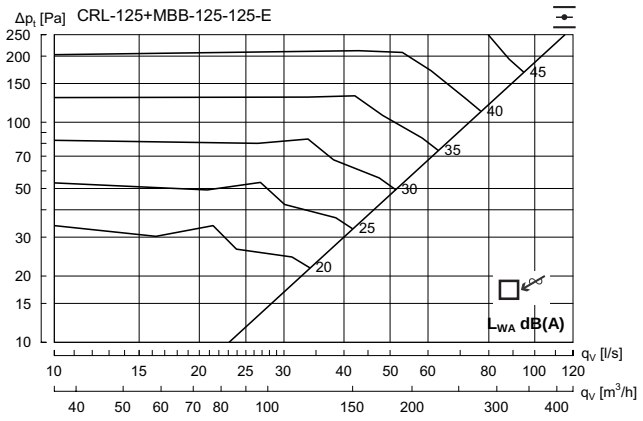


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	11	0	2	-2	-6	-11	-15	-22

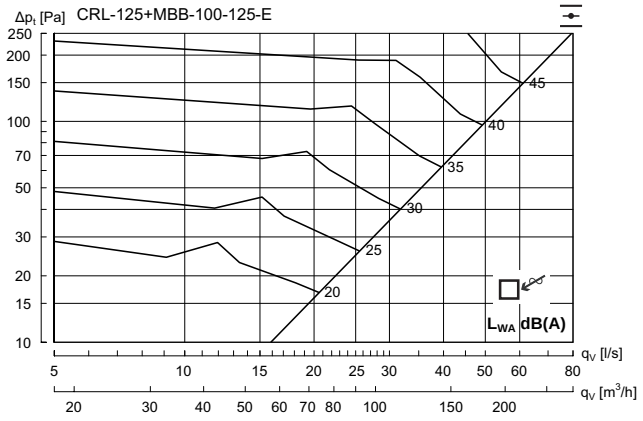
Plain diffuser CRL

Technical data

CRL 125 + MBB - Exhaust air

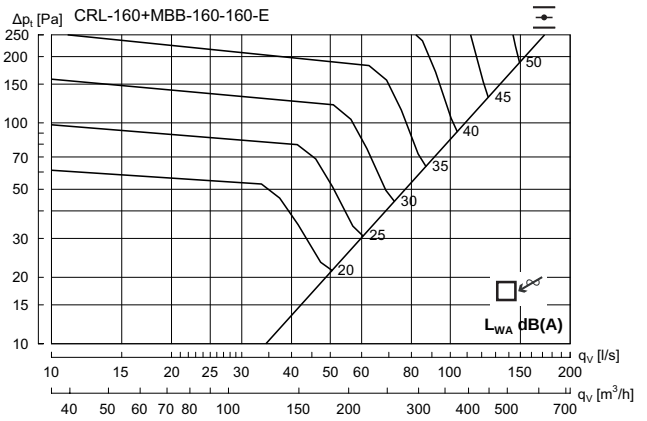


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	14	5	-1	-3	-4	-12	-15	-21

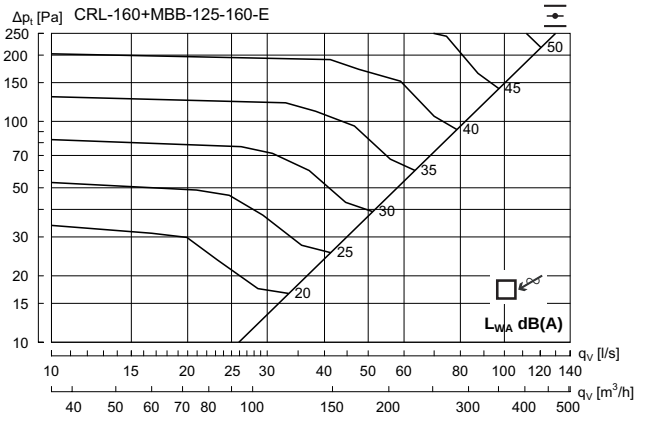


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	13	0	4	-3	-8	-11	-17	-22

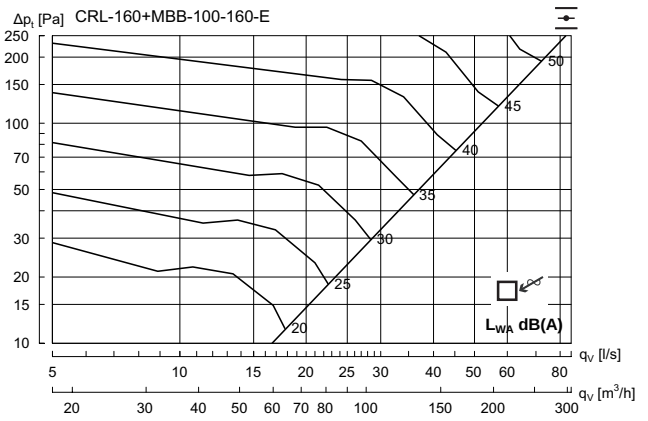
CRL 160 + MBB - Exhaust air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	14	4	-1	-4	-4	-10	-16	-24



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	13	6	1	-3	-5	-12	-15	-21



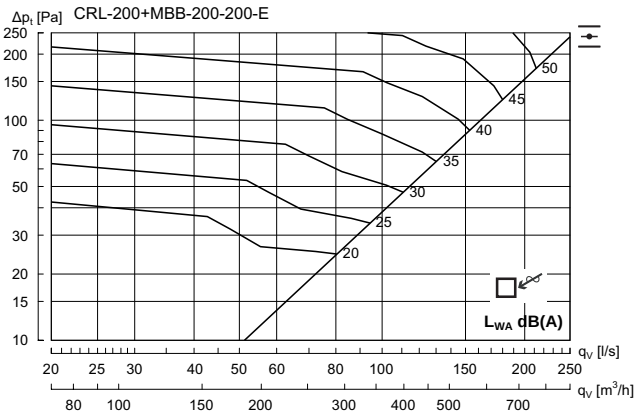
Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	13	0	5	-3	-9	-12	-19	-23

Plain diffuser

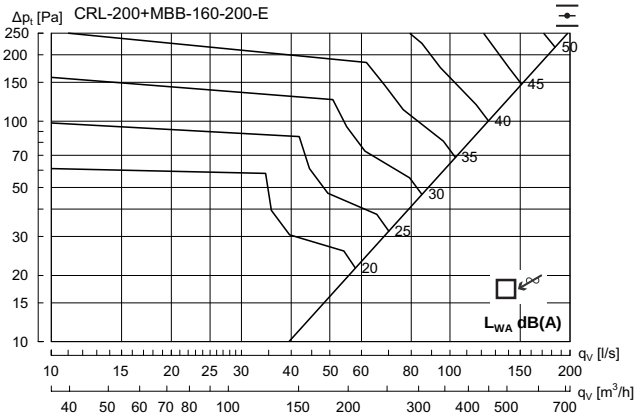
CRL

Technical data

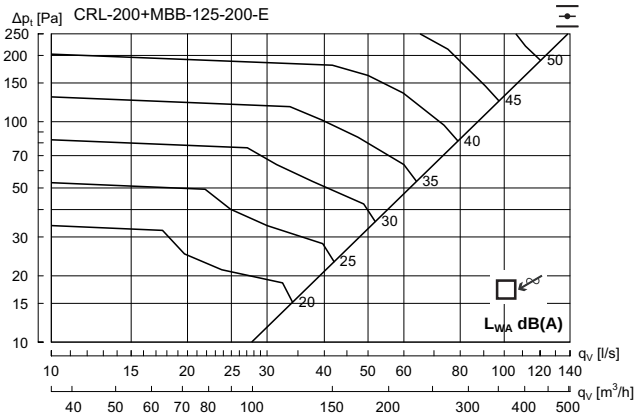
CRL 200 + MBB - Exhaust air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	15	5	-1	-3	-6	-9	-16	-25

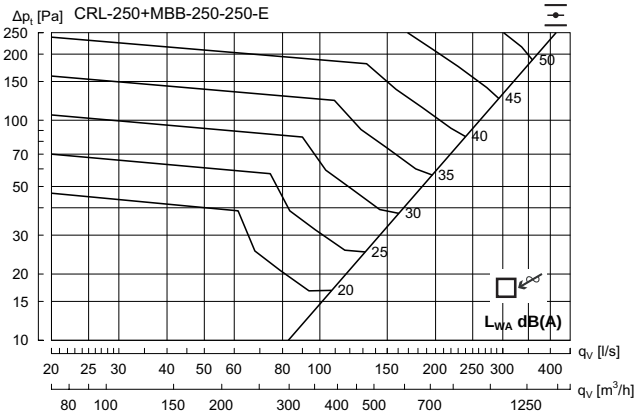


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	14	5	0	-3	-5	-9	-15	-20

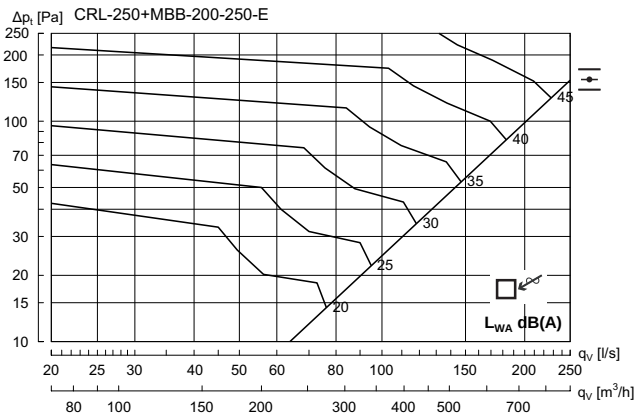


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	9	2	1	-2	-5	-9	-14	-19

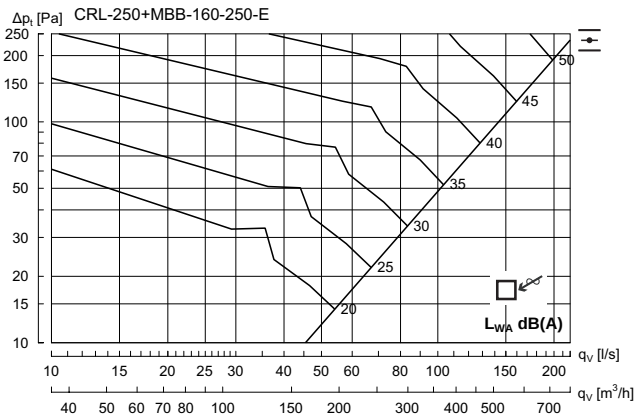
CRL 250 + MBB - Exhaust air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	11	6	2	-2	-7	-11	-15	-24



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	13	5	1	-3	-6	-10	-13	-22

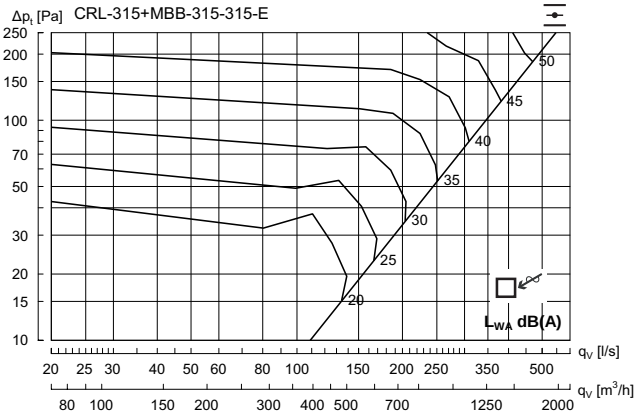


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	13	5	1	-3	-5	-11	-14	-20

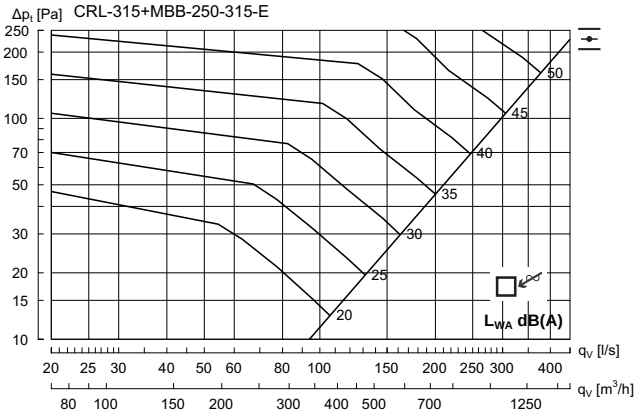
Plain diffuser CRL

Technical data

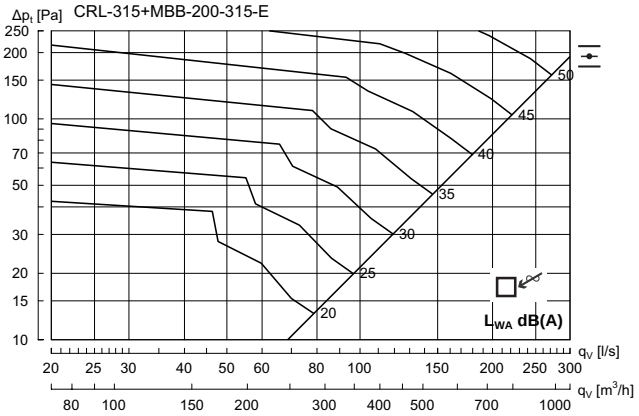
CRL 315 + MBB - Exhaust air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	13	5	2	-3	-6	-10	-15	-25

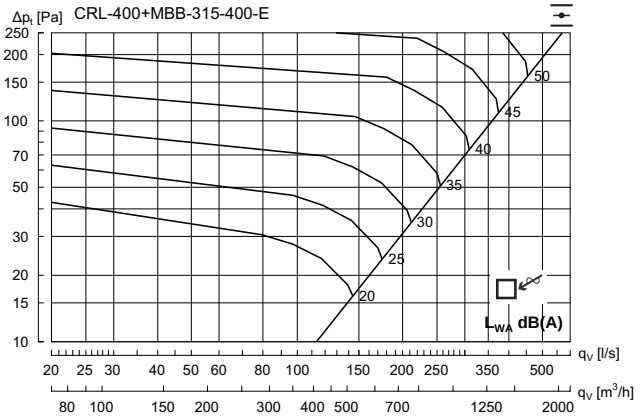


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	9	5	2	-3	-6	-10	-16	-22

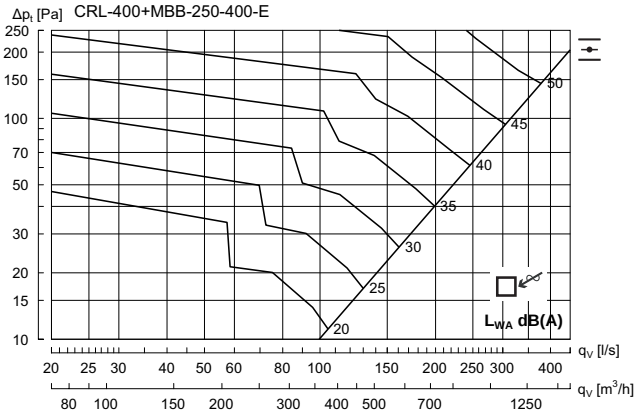


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	13	5	0	-3	-5	-10	-15	-22

CRL 400 + MBB - Exhaust air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	11	5	2	-2	-7	-11	-15	-25



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	9	6	2	-2	-6	-12	-16	-24

Lindab Integra

PC7,Integrated in Luxalon Clip-In ceiling with adapted module plate type LM.

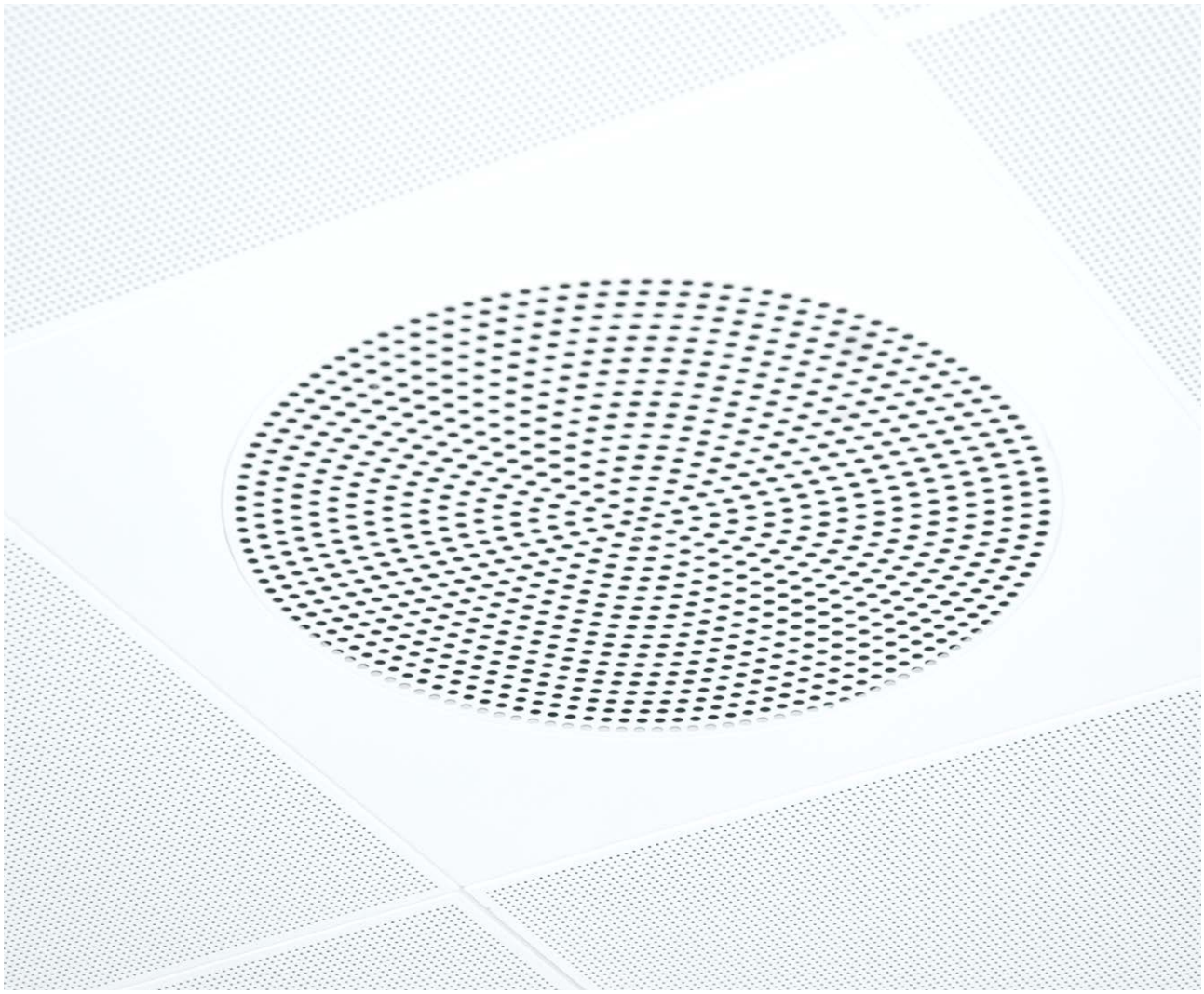
Lindab Integra a series of flush diffusers

Mixed ventilation diffusers

	Product	Functions	Page
	PC6		125
	PC7		135
	RC14		141
	RC15		151
	NC19		161
	RCG		169
	LCC		176
	LCP		177
	LKP		177

Lindab Integra

a series of flush diffusers



PC7, Integrated in Luxalon Clip-In ceiling with adapted module plate, type LM.

Lindab Integra

Integra is a series of flush mounted ceiling diffusers for mixed ventilation. The diffusers are primarily offered in circular, but are also available in square forms with a large selection of face plates in different designs, which satisfy requirements as well as function. The circular diffusers are normally cut directly into the ceiling when mounted, but can by using module plates be adapted for the most common 600x600 ceiling systems. The square diffusers in this series are adapted to the system-ceiling. The diffusers can be mounted in a plenum box type MBB with great advantage, in order to obtain a stable air flow to the diffuser and the possibility for individual adjustments.

Functionality

Integra has a unique magnetic mounting system of the face plates on all circular diffusers with exception of RCG. This ensures an incredibly easy access to all the internal components, which can be detached without the use of tools, and gives free access to the air duct system for cleaning.

PC6, ceiling diffusers

Lindab Integra

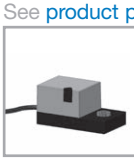
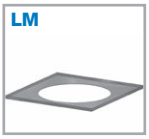
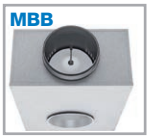
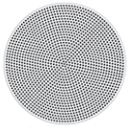
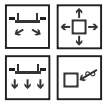
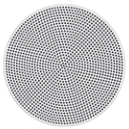
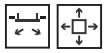
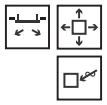
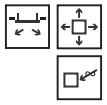
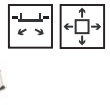
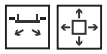
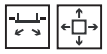
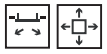
a series of flush diffusers

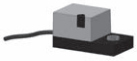
Design

See Comfort and design

Accessories

See product pages

Product	Ventilation principle	Supply/exhaust	Size	El. - motor	Bracket	Module pl.	MBB box
					DKZ 	LM 	MBB 
PC6	**Perforated**		mm				
			125 160 200 250 315	●	●	●	●
PC7	**Perforated swirl**		mm				
			160 200 250 315	●	●	●	●
RC14	**Swirl**		mm				
			160 200 250 315	●	●	●	●
RC15	**Swirl**		mm				
			160 200 250 315	●	●	●	●
NC19	**Nozzle**		mm				
			125 160 200 250 315	●	●	●	●
RCG	**Swirl**		mm				
			125 160 200 250 315 400	●	●	●	●
LCC	**Plain**		mm				
			125 160 200 250 315	●	Special brackets included		●
LCP / LKP	**Plain**		mm				
			125 160 200 250 315	●			●

Electric motor: 

See VAV chapter for futher documentation

- ● 1. Product and tech. data depicted in catalogue.
- ○ 2. Combination possible. Tech. data depicted in catalogue.
- ● 3. Combination possible. Tech. data not in catalogue.
- 4. If space is empty, combination is not possible.

Examaple of order Diffuser + MBB box

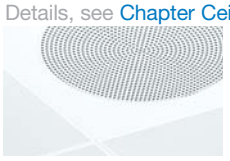
PC6	S	160	+	MBB	125	160	S

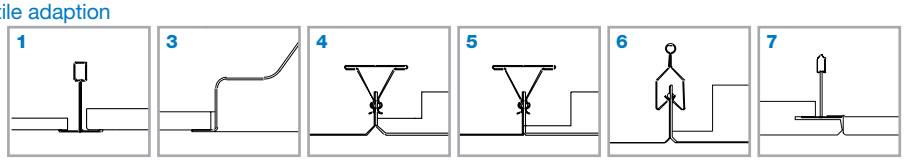
Lindab Integra

a series of flush diffusers

Ceiling tile adaption

Details, see Chapter Ceiling tile adaption





Product | Size

Ceiling types		Danotile T24/T15 Ecophon T24 Rockfon A24.	Plasterboard ceiling	Dampa Clip-In bevelled edge	Dampa Clip-In square edge	Luxalon SQ Clip-In	Danotile Contur Ecophon D Rockfon D-XL
Perforated	mm	F: 595 mm	ØA mm	F: 600 mm	F: 600 mm	F: 600 mm	F: 599 mm
PC6	125	●	Standard	●	●	●	●
	160	●	Standard	●	●	●	●
	200	●	Standard	●	●	●	●
	250	●	Standard	●	●	●	●
	315	●	Standard	●	●	●	●
Perforated swirl	mm	F: 595 mm	ØA mm	F: 600 mm	F: 600 mm	F: 600 mm	F: 599 mm
PC7	160	●	Standard	●	●	●	●
	200	●	Standard	●	●	●	●
	250	●	Standard	●	●	●	●
	315	●	Standard	●	●	●	●
Swirl	mm	F: 595 mm	ØA mm	F: 600 mm	F: 600 mm	F: 600 mm	F: 599 mm
RC14	160	●	Standard	●	●	●	●
	200	●	Standard	●	●	●	●
	250	●	Standard	●	●	●	●
	315	●	Standard	●	●	●	●
Swirl	mm	F: 595 mm	ØA mm	F: 600 mm	F: 600 mm	F: 600 mm	F: 599 mm
RC15	160	●	Standard	●	●	●	●
	200	●	Standard	●	●	●	●
	250	●	Standard	●	●	●	●
	315	●	Standard	●	●	●	●
Nozzles	mm	F: 595 mm	ØA mm	F: 600 mm	F: 600 mm	F: 600 mm	F: 599 mm
NC19	125	●	Standard	●	●	●	●
	160	●	Standard	●	●	●	●
	200	●	Standard	●	●	●	●
	250	●	Standard	●	●	●	●
	315	●	Standard	●	●	●	●
Swirl	mm	F: 595 mm	ØD mm	F: 600 mm	F: 600 mm	F: 600 mm	F: 599 mm
RCG	125	●	Standard	●	●	●	●
	160	●	Standard	●	●	●	●
	200	●	Standard	●	●	●	●
	250	●	Standard	●	●	●	●
	315	●	Standard	●	●	●	●
	400	●	Standard	●	●	●	●
Plain	mm	F: 595 mm	595 x 595 mm	F: 600 mm	F: 600 mm	F: 600 mm	F: 599 mm
LCP	125	Standard*	●	●	●	●	●
No seperate module plate (Integrated in design)	160	Standard*	●	●	●	●	●
	200	Standard*	●	●	●	●	●
	250	Standard*	●	●	●	●	●
	315	Standard*	●	●	●	●	●
Plain	mm	F: 595 mm	595 x 595 mm	F: 600 mm	F: 600 mm	F: 600 mm	F: 599 mm
LKP	125	Standard*	●	●	●	●	●
No seperate module plate (Integrated in design)	160	Standard*	●	●	●	●	●
	200	Standard*	●	●	●	●	●
	250	Standard*	●	●	●	●	●
	315	Standard*	●	●	●	●	●

* In other ceiling systems the grille box is adapted to the ceiling

Lindab Integra

a series of flush diffusers

Product	Size	8	9	10	11	14
Ceiling types		Ecophon Focus DG	Rockfon E10 24 Ecophon - E / T24	Rockfon E10 15 Ecophon - E / T15	Danotile Markant	Ecophon Focus edge DS
Perforated	mm	F: 592 mm	F: 575 mm	F: 584 mm	F: 575 mm	F: 599 mm
PC6	125 160 200 250 315	●	●	●	●	●
Perforated swirl	mm	F: 592 mm	F: 575 mm	F: 584 mm	F: 575 mm	F: 599 mm
PC7	160 200 250 315	●	●	●	●	●
Swirl	mm	F: 592 mm	F: 575 mm	F: 584 mm	F: 575 mm	F: 599 mm
RC14	160 200 250 315	●	●	●	●	●
Swirl	mm	F: 592 mm	F: 575 mm	F: 584 mm	F: 575 mm	F: 599 mm
RC15	160 200 250 315	●	●	●	●	●
Nozzles	mm	F: 592 mm	F: 575 mm	F: 584 mm	F: 575 mm	F: 599 mm
NC19	125 160 200 250 315	●	●	●	●	●
Swirl	mm	F: 592 mm	F: 575 mm	F: 584 mm	F: 575 mm	F: 599 mm
RCG	125 160 200 250 315 400	●	●	●	●	●
Plain	mm	F: 592 mm	F: 575 mm	F: 584 mm	F: 575 mm	F: 599 mm
LCP	No seperate module plate (Integrated in design) 125 160 200 250 315	●	●	●	●	●
Plain	mm	F: 592 mm	F: 575 mm	F: 584 mm	F: 575 mm	F: 599 mm
LKP	No seperate module plate (Integrated in design) 125 160 200 250 315	●	●	●	●	●

Perforated diffuser PC6

Description

PC6 is a circular perforated diffuser that can be used for both supply air and exhaust. The diffuser is suitable for the horizontal supply of cooled air. The diffuser can also be used for low impulse and is therefore useful for the supply of replacement air in environments with high rates of air exchange. Installing this diffuser in a plenum box type MBB can help to achieve a stable flow of air to the diffuser as well as realise the potential for individual adjustment.

- Suitable for both supply and exhaust air
- Discrete design
- Can be used for low impulse supply air

Maintenance

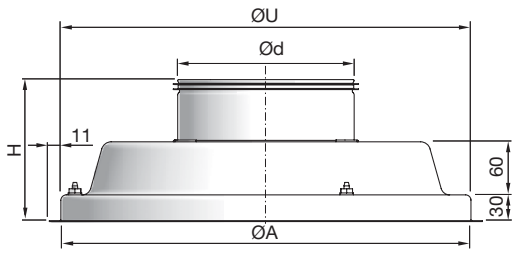
The face plate can be removed to enable cleaning of internal parts or to gain access to the duct or box. The visible parts of the diffuser can be wiped with a damp cloth.

Order code

Product	**PC6**	**a**	**bbb**
Type			
PC6			
Functional use			
S = Supply air			
E = Exhaust			
L = Low-impulse			
Connection dim.			
Ød 125-315			

Example: PC6-S-200

Dimensions



PC6 Ød mm	ØA mm	H mm	ØU* mm	Weight kg
125	360	140	370	3.90
160	460	140	470	5.30
200	460	140	470	5.40
250	540	140	550	7.40
315	540	140	550	8.10

* ØU = ceiling grid opening

Ød 315, No mounting holes for MBB !

PC6-S

Materials and finish

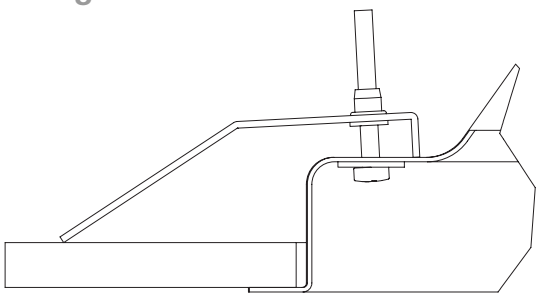
Material: Galvanised steel
Standard finish: Powder-coated
Standard colour: RAL 9010 Gloss 30

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

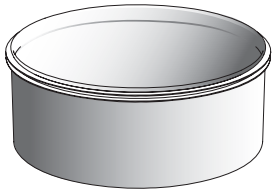
Perforated diffuser PC6

Accessories

Mounting brackets DCZ



Extension piece MBZ

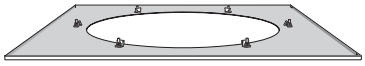


Order code - accessoreies

Product	aaa	bbb
Type		
Size		

Example: MBZ-200

Module plate LM



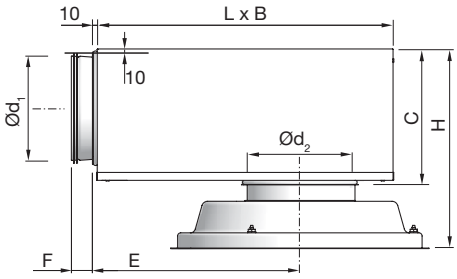
Order code - module plate

Product	LM	a	PC6	ccc
Type				
Ceiling system				
Diffuser				
Size				

Example: LM-1-PC6-200
Ceiling system - see introductory summary

Plenum box MBB

PC6 + MBB



PC6 + MBB							
duct	PC6	B	C	E	F	H*	L
Ød1 mm	Ød2 mm	mm	mm	mm	mm	mm	mm
100	125	260	159	216	50	250 - 290	310
100	160	260	159	216	50	250 - 290	310
125	125	310	184	262	50	275 - 315	376
125	160	310	184	262	50	275 - 315	376
125	200	310	184	262	50	275 - 315	376
160	160	380	220	323	50	309 - 349	459
160	200	380	220	323	50	309 - 349	459
160	250	380	220	323	50	309 - 349	459
200	200	460	259	396	70	350 - 390	565
200	250	460	259	396	70	350 - 390	565
200	315	460	259	396	70	350 - 390	565
250	250	540	309	486	70	400 - 440	698
250	315	540	309	486	70	400 - 440	698
315	315	540	373	646	70	465 - 505	858

* Using accessory MBZ the H dimension will increase:
$Ød_2$ = 125 - 200 mm => H +40 mm
$Ød_2$ = 250 - 315 mm => H +60 mm

Order code

Product	MBB	aaa	bbb	c
Type				
MBB				
Duct connection $Ød_1$				
Ø100-315				
Diffuser dimension $Ød_2$				
Ø125-315				
Functional use				
S = Supply air				
E = Exhaust				

Example: PC6-S-200-MBB-160-200-S

Perforated diffuser PC6

Technical data

Capacity

Air flow q_v [l/s] and [m³/h], total pressure Δp_t [Pa], throw $l_{0.2}$ [m] and sound power 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 $L_{WA}+K_{ok}$. K_{ok} values are specified in charts beneath the diagrams on the following pages.

Quick selection, supply air

PC6 + MBB		$\Delta p_t \geq 50$ Pa		$\Delta p_t \geq 50$ Pa	
duct	PC6	30 dB(A)		35 dB(A)	
$Ød_1$	$Ød_2$	l/s	m³/h	l/s	m³/h
100	125	32	115	38	137
100	160	39	140	46	166
125	125	39	140	46	166
125	160	48	173	62	223
125	200	56	202	66	238
160	160	53	191	62	223
160	200	66	238	78	281
160	250	74	266	95	342
200	200	71	256	85	306
200	250	92	331	112	403
200	315	113	407	138	497
250	250	110	396	130	468
250	315	122	439	152	547
315	315	156	562	188	677

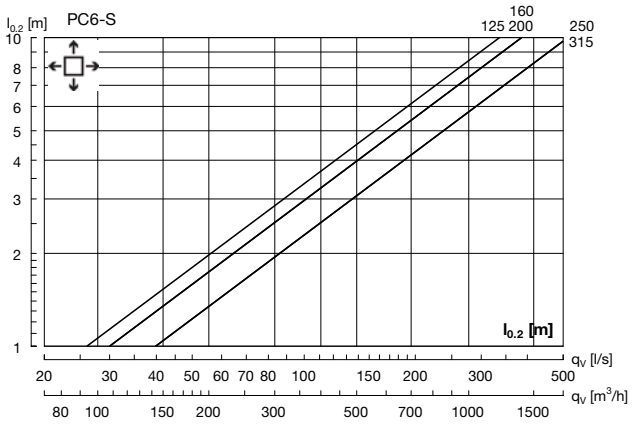
Low-impulse Correction sound power level (L_{WA}) and pressure loss (Δp_t)

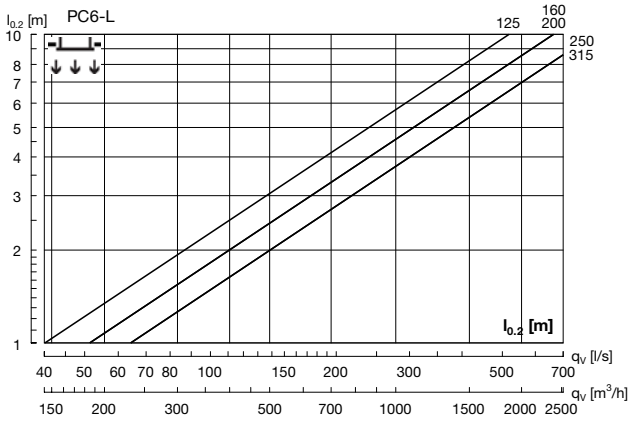
On the following pages you can find diagrams for all sizes PC6+MBB supply air. When low-impulse values are wanted use the correction factors in the table below.

PC6-L + MBB		Low-impulse Correction factor	
duct	PC6-L		
$Ød_1$	$Ød_2$	L_{WA}	Δp_t
100	125	-1	x 1
100	160	1	x 1
125	125	-4	x 1
125	160	-1	x 1
125	200	-2	x 1
160	160	-5	x 0,9
160	200	-3	x 1
160	250	-2	x 1
200	200	0	x 1
200	250	0	x 1
200	315	-1	x 1
250	250	-5	x 0,9
250	315	-2	x 1
315	315	0	x 1

Throw $l_{0.2}$

Throw $l_{0.2}$ [m] is specified at a terminal velocity of 0.2 m/s.





Sound attenuation

Sound attenuation of the diffusers ΔL from duct to room, including end reflection, see table below.

PC6 + MBB		Centre frequency Hz							
duct	PC6								
$Ød_1$	$Ød_2$	63	125	250	500	1K	2K	4K	8K
100	125	19	16	7	15	19	18	19	21
100	160	17	15	4	14	17	17	17	18
125	125	17	15	9	19	17	19	18	20
125	160	15	14	8	18	15	16	17	19
125	200	13	11	4	14	13	15	16	17
160	160	15	15	10	21	17	18	19	20
160	200	18	15	8	21	17	17	18	19
160	250	16	14	5	17	13	15	17	18
200	200	13	11	8	16	18	16	19	17
200	250	13	9	5	14	16	15	18	16
200	315	13	8	3	10	16	14	16	16
250	250	14	8	7	15	17	17	18	17
250	315	13	7	6	14	16	15	16	17
315	315	8	9	8	14	17	16	17	21

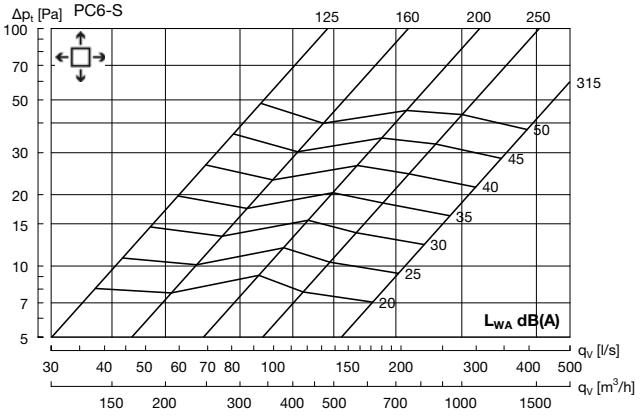
Balancing

Balancing data is contained in a separate brochure.

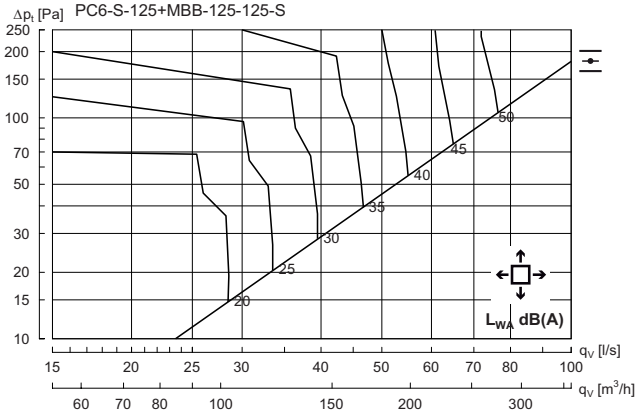
Perforated diffuser PC6

Technical data

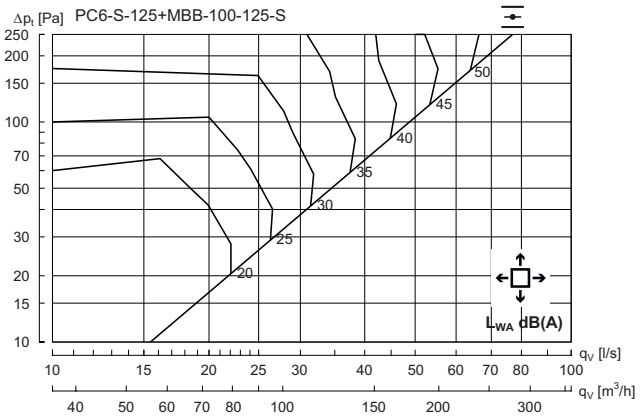
PC6 without box - Supply air



PC6 125 + MBB - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	7	2	-4	0	-4	-14	-23	-32

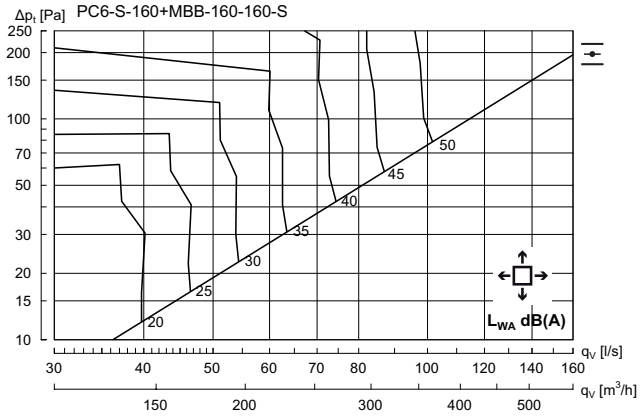


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	10	6	1	-2	-5	-12	-18	-25

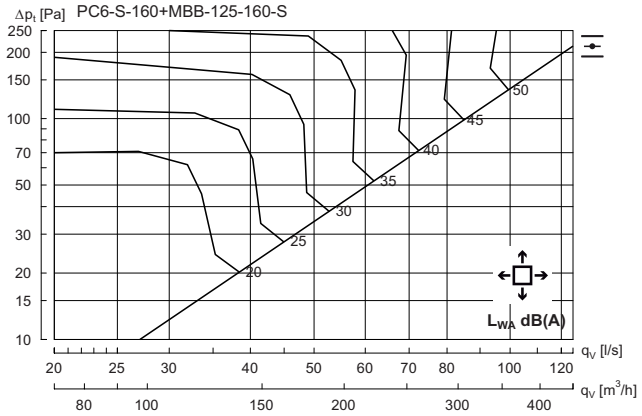
Perforated diffuser PC6

Technical data

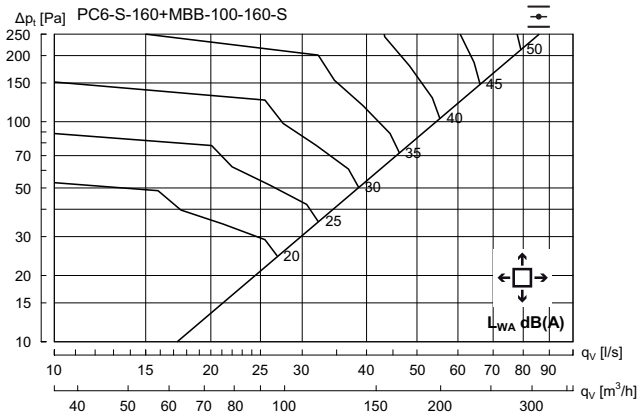
PC6 160 + MBB - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	10	3	-5	-1	-3	-15	-23	-29

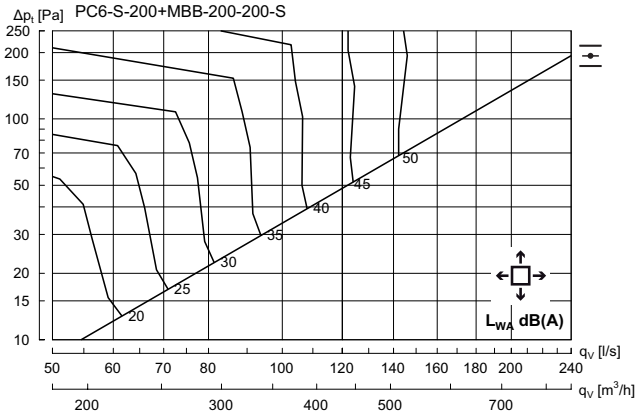


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	9	5	0	-2	-5	-12	-17	-25

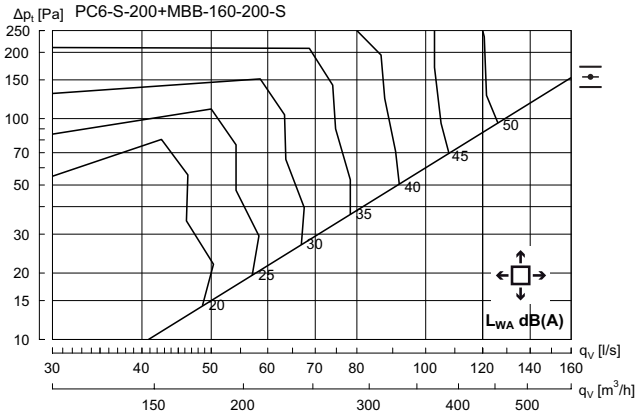


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	7	4	0	-1	-5	-11	-16	-22

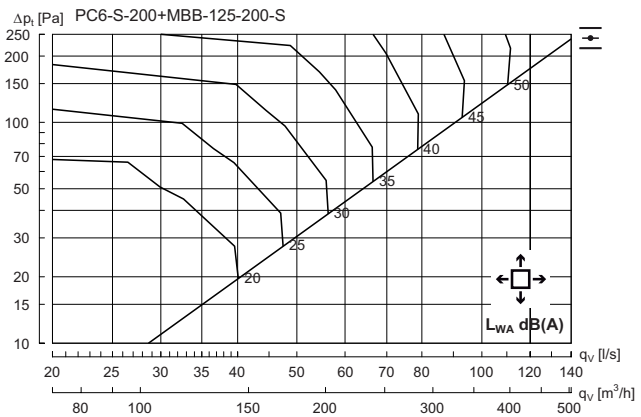
PC6 200 + MBB - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	11	2	-5	-1	-4	-15	-22	-27



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	11	4	-2	-2	-3	-12	-20	-27

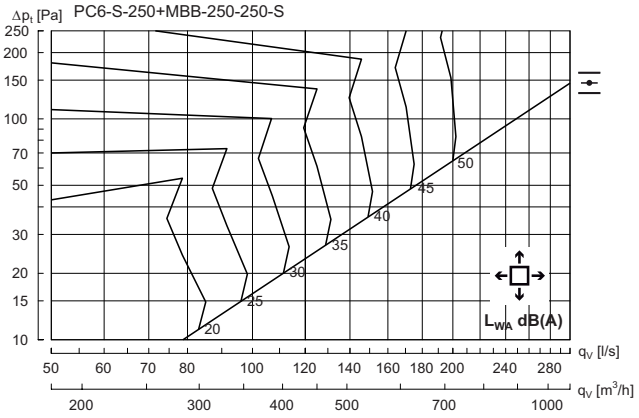


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	6	5	0	-2	-5	-10	-16	-22

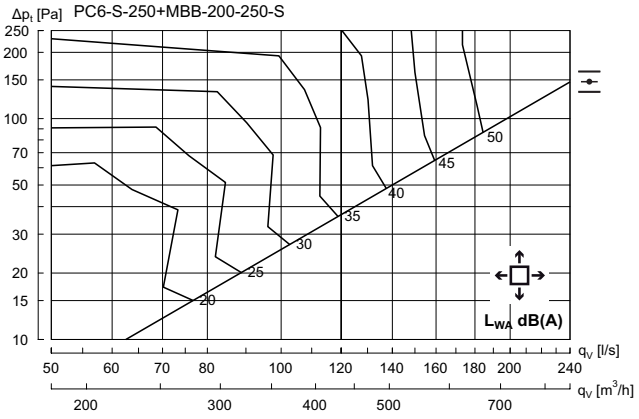
Perforated diffuser PC6

Technical data

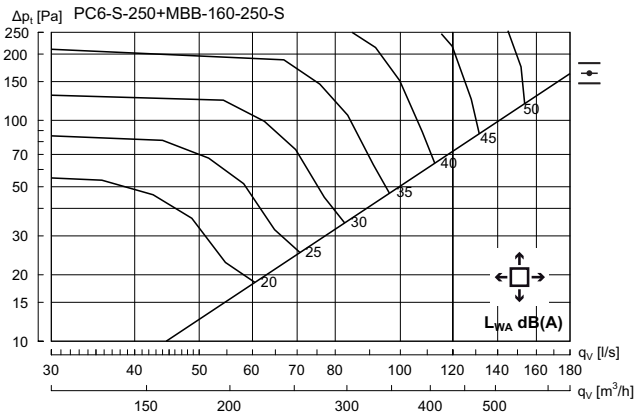
PC6 250 + MBB - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	9	-1	-6	0	-4	-16	-25	-30

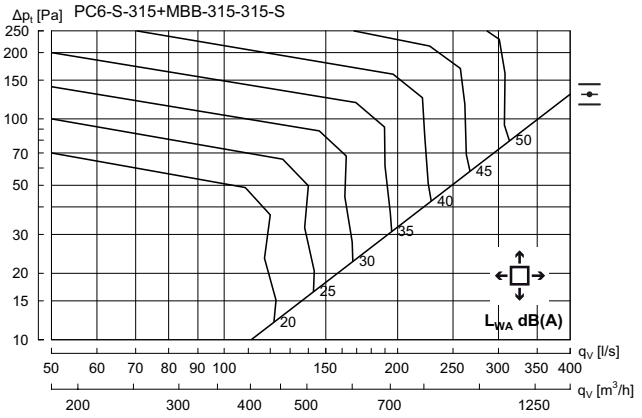


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	11	3	-3	-2	-3	-14	-22	-29

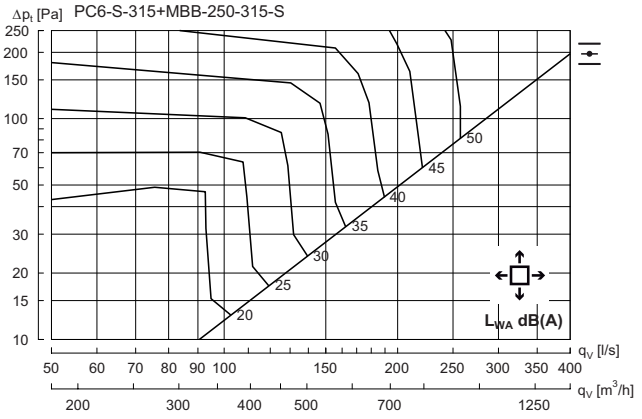


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	12	3	-1	-4	-4	-10	-18	-24

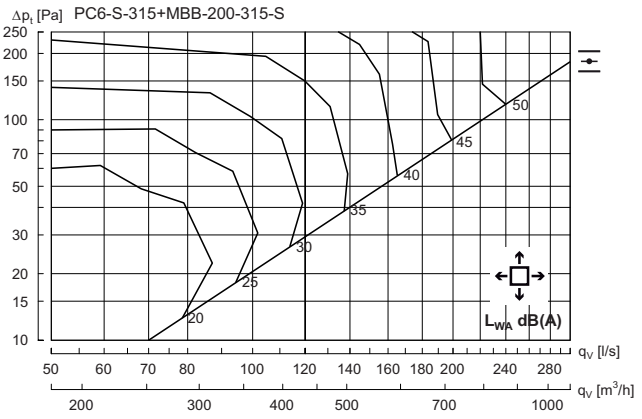
PC6 315 + MBB - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	13	1	-2	-2	-4	-13	-23	-29



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	11	2	-3	-2	-3	-13	-19	-26

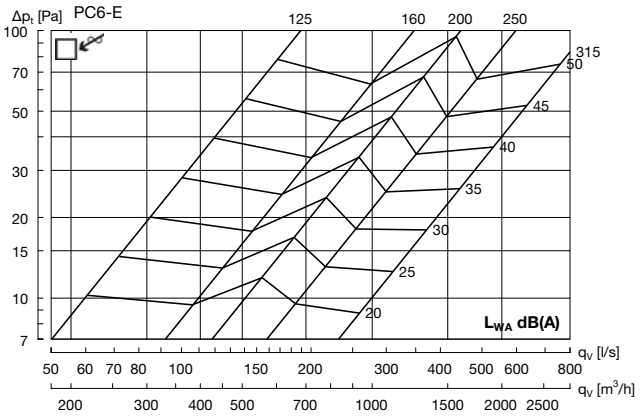


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	10	6	-1	-2	-4	-12	-20	-26

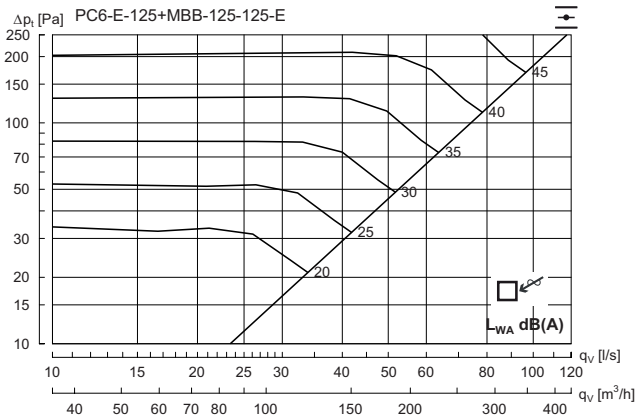
Perforated diffuser PC6

Technical data

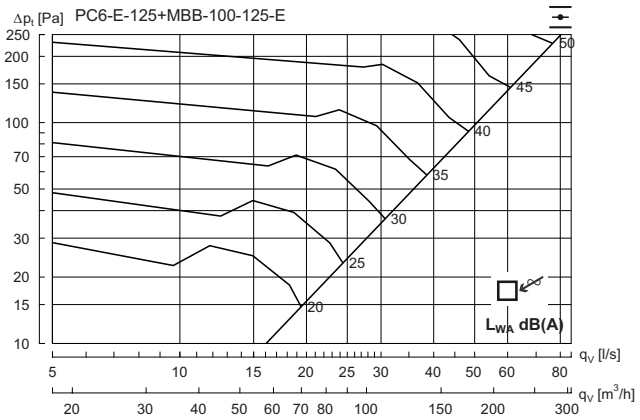
PC6 without box - Exhaust air



PC6 125 + MBB - Exhaust air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	12	5	0	-2	-5	-11	-14	-21

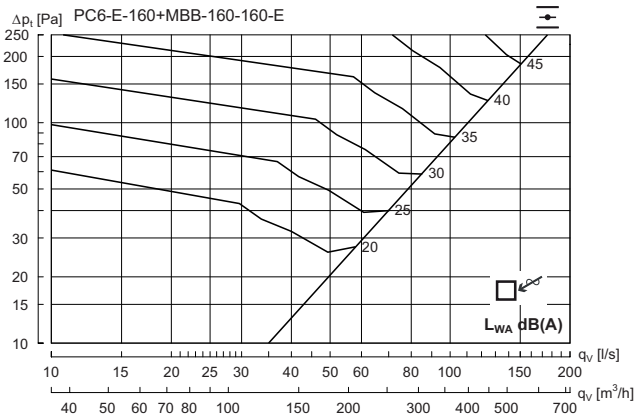


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	11	-1	4	-2	-8	-11	-16	-23

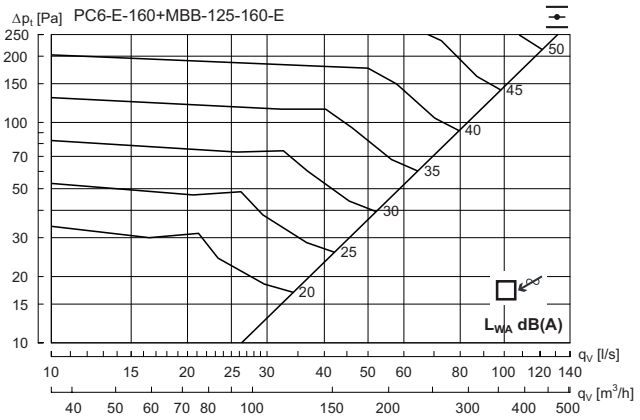
Perforated diffuser PC6

Technical data

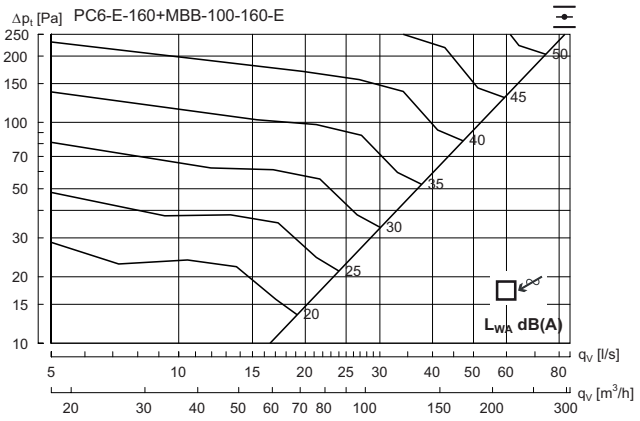
PC6 160 + MBB - Exhaust air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	20	8	-1	-4	-6	-12	-18	-21

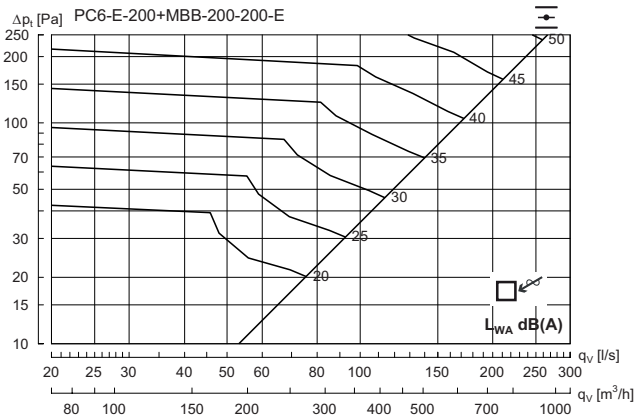


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	12	6	1	-2	-6	-11	-14	-21

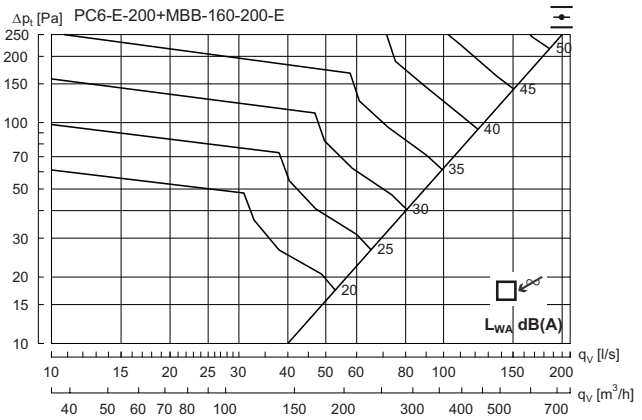


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	9	3	3	-1	-8	-11	-16	-22

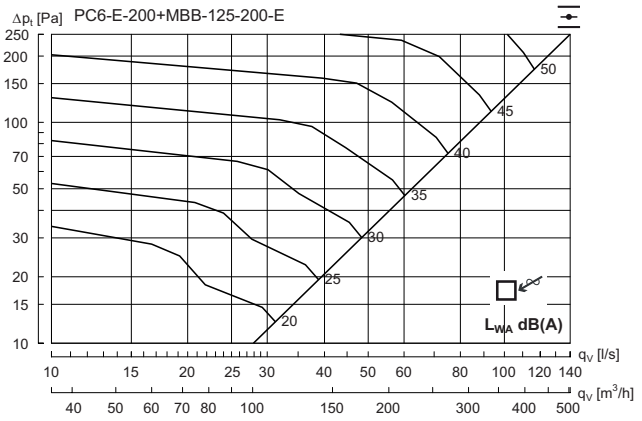
PC6 200+ MBB - Exhaust air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	14	4	0	-3	-5	-9	-15	-23



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	15	6	-1	-3	-5	-9	-15	-21

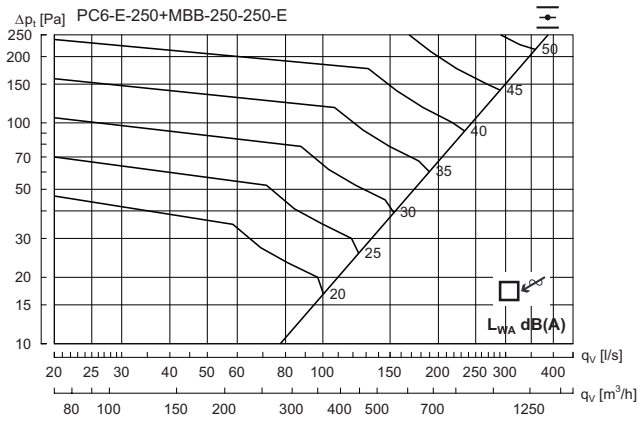


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	10	3	1	-2	-5	-10	-16	-22

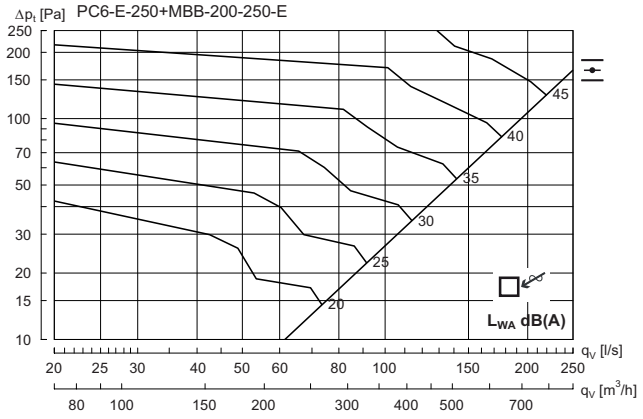
Perforated diffuser PC6

Technical data

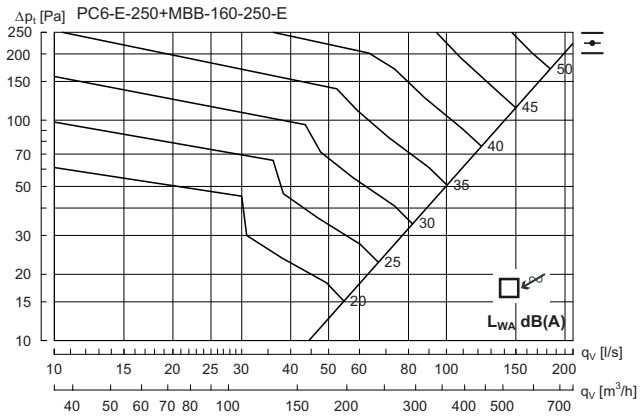
PC6 250+ MBB - Exhaust air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	10	5	2	-3	-5	-11	-17	-24

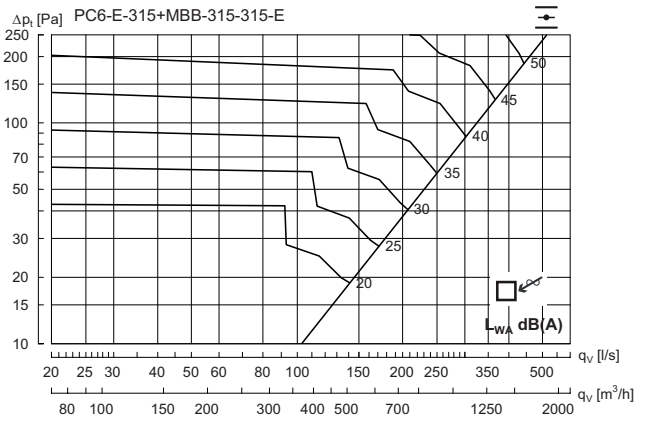


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	13	4	0	-3	-5	-10	-14	-21

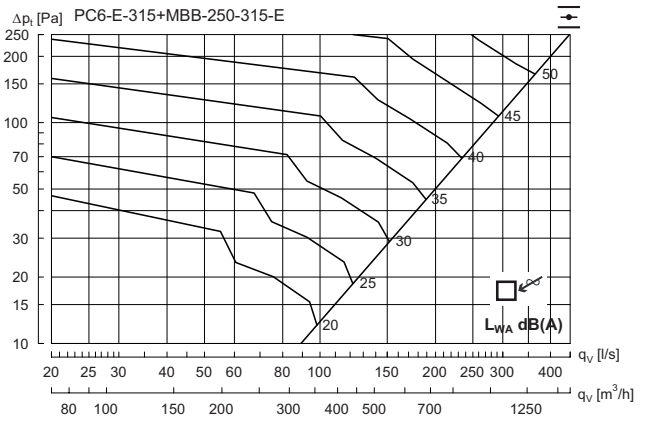


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	14	6	0	-4	-6	-9	-14	-19

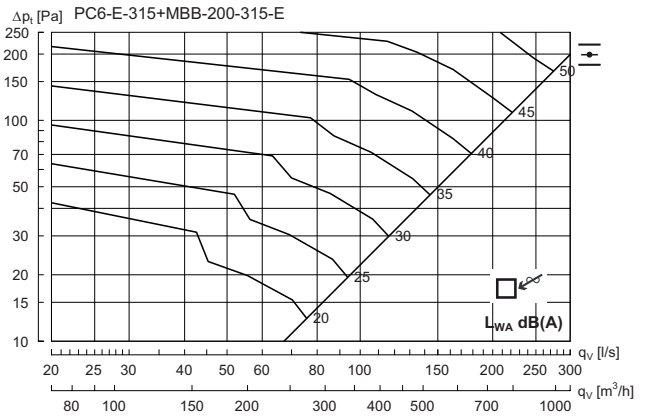
PC6 315+ MBB - Exhaust air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	13	5	3	-3	-6	-10	-16	-27



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	8	5	2	-3	-5	-11	-17	-25



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	13	5	1	-3	-5	-9	-14	-22

Perforated diffuser PC7

Description

PC7 is a circular diffuser with perforated face plate and integrated swirl insert. The diffuser is suitable for the horizontal supply of very cold air. The integrated swirl insert ensures optimum distribution and high induction. Installing this diffuser in a plenum box type MBB can help to achieve a stable flow of air to the diffuser as well as realise the potential for individual adjustment.

- High induction
- Discrete design
- Suitable for cooling at very low temperatures

Maintenance

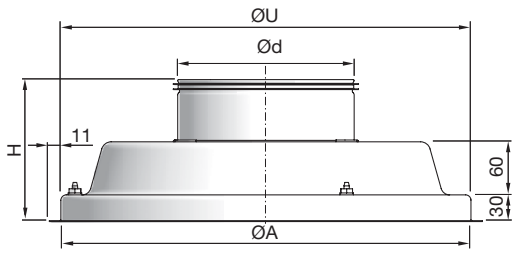
The face plate and swirl insert can be removed to enable cleaning of internal parts or to gain access to the duct or box. The visible parts of the diffuser can be wiped with a damp cloth.

Order code

Product	**PC7**	**S**	**aaa**
Type			
PC7			
Functional use			
S = Supply air			
Connection dim.			
Ød 160-315			

Example: PC7-S-200

Dimensions



PC7 Ød	ØA	H	ØU*	Weight
mm	mm	mm	mm	kg
160	460	140	470	5.30
200	460	140	470	5.40
250	540	140	550	7.40
315	540	140	550	8.10

* ØU = ceiling grid opening

Ød 315, No mounting holes for MBB !

PC7-S

Materials and finish

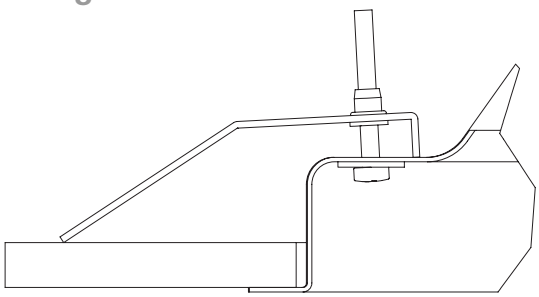
Material: Galvanised steel
Standard finish: Powder-coated
Standard colour: RAL 9003, 9010 Gloss 30

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

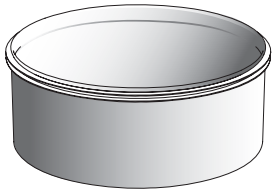
Perforated diffuser PC7

Accessories

Mounting brackets DCZ



Extension piece MBZ

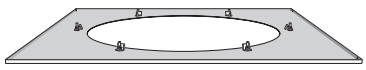


Order code - accessoreies

Product	aaa	bbb
Type		
Size		

Example: DCZ-200

Module plate LM



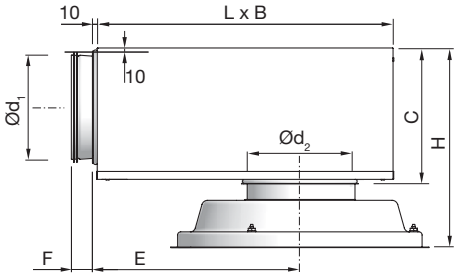
Order code - module plate

Product	LM	a	PC7	ccc
Type				
Ceiling system				
Diffuser				
Size				

Example: LM-1-PC7-200
Ceiling system - see introductory summary.

Plenum box MBB

PC7 + MBB



PC7 + MBB							
duct	PC7	B	C	E	F	H*	L
Ød1 mm	Ød2 mm	mm	mm	mm	mm	mm	mm
100	160	260	159	216	50	250 - 290	310
125	160	310	184	262	50	275 - 315	376
125	200	310	184	262	50	275 - 315	376
160	160	380	220	323	50	309 - 349	459
160	200	380	220	323	50	309 - 349	459
160	250	380	220	323	50	309 - 349	459
200	200	460	259	396	70	350 - 390	565
200	250	460	259	396	70	350 - 390	565
200	315	460	259	396	70	350 - 390	565
250	250	540	309	486	70	400 - 440	698
250	315	540	309	486	70	400 - 440	698
315	315	540	373	646	70	465 - 505	858

* Using accessory MBZ the H dimension will increase:
$Ød_2$ = 160 - 200 mm => H +40 mm
$Ød_2$ = 250 - 315 mm => H +60 mm

Order code

Product	MBB	aaa	bbb	S
Type				
MBB				
Duct connection $Ød_1$				
Ø100-315				
Diffuser dimension $Ød_2$				
Ø160-315				
Functional use				
S = Supply air				

Example: PC7-S-200-MBB-160-200-S

Perforated diffuser PC7

Technical data

Capacity

Air flow q_v [l/s] and [m^3/h], total pressure Δp_t [Pa], throw $l_{0.2}$ [m] and sound power level L_{WA} [dB(A)] can be seen in the diagrams.

Frequency-related sound effect level

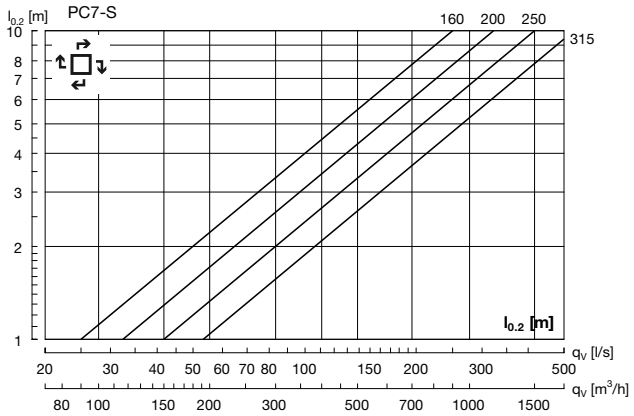
The sound effect level in the frequency band is defined as $L_{WA}+K_{ok}$. K_{ok} values are specified in charts beneath the diagrams on the following pages.

Quick selection, supply air

PC7 + MBB		$\Delta p_t \geq 50$ Pa		$\Delta p_t \geq 50$ Pa	
duct	PC7	30 dB(A)		35 dB(A)	
$Ød_1$	$Ød_2$	l/s	m^3/h	l/s	m^3/h
100	160	36	130	43	155
125	160	44	158	55	198
125	200	50	180	60	216
160	160	47	169	55	198
160	200	55	198	66	238
160	250	71	256	88	317
200	200	60	216	72	259
200	250	84	302	99	356
200	315	93	335	113	407
250	250	88	317	103	371
250	315	96	346	114	410
315	315	107	385	127	457

Throw $l_{0.2}$

Throw $l_{0.2}$ [m] is specified at a terminal velocity of 0.2 m/s.



Sound attenuation

Sound attenuation of the diffusers ΔL from duct to room, including end reflection - see table below.

PC7 + MBB		Centre frequency Hz							
duct	PC7								
$Ød_1$	$Ød_2$	63	125	250	500	1K	2K	4K	8K
100	160	17	15	5	12	18	17	17	19
125	160	15	14	7	18	16	17	18	20
125	200	12	11	4	14	14	16	16	18
160	160	17	15	10	21	18	19	20	20
160	200	18	15	8	21	17	17	19	20
160	250	17	14	4	16	14	16	18	19
200	200	14	10	8	16	19	16	20	18
200	250	12	10	6	14	17	15	18	17
200	315	12	8	4	10	16	14	17	16
250	250	13	9	8	15	17	17	18	18
250	315	13	7	6	14	16	16	17	17
315	315	9	9	9	14	17	16	17	22

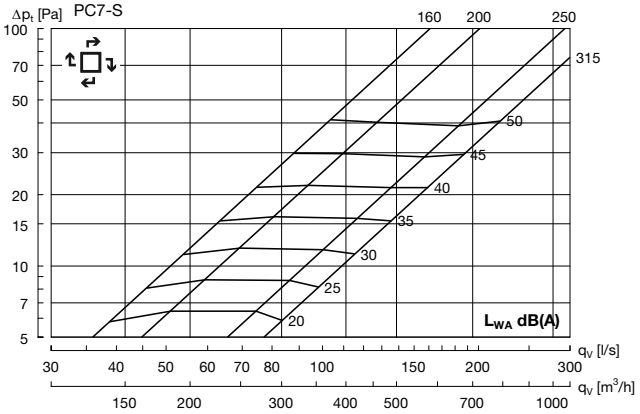
Balancing

Balancing data is contained in a separate brochure.

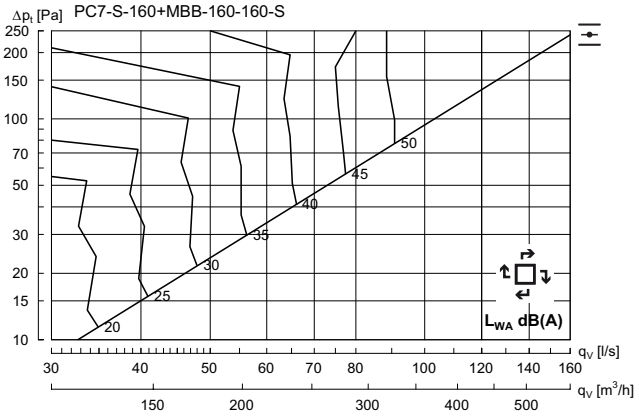
Perforated diffuser PC7

Technical data

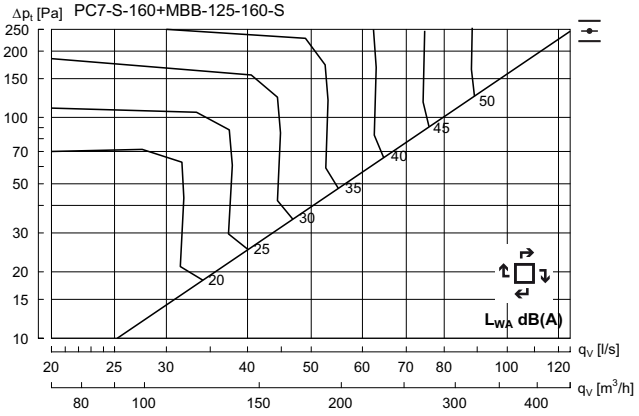
PC7 without box - Supply air



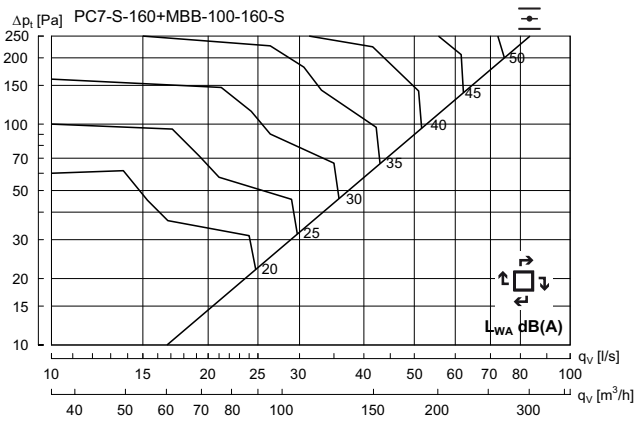
PC7 160 + MBB - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	10	1	-4	-1	-3	-18	-26	-32



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	10	4	-1	-1	-5	-14	-19	-25

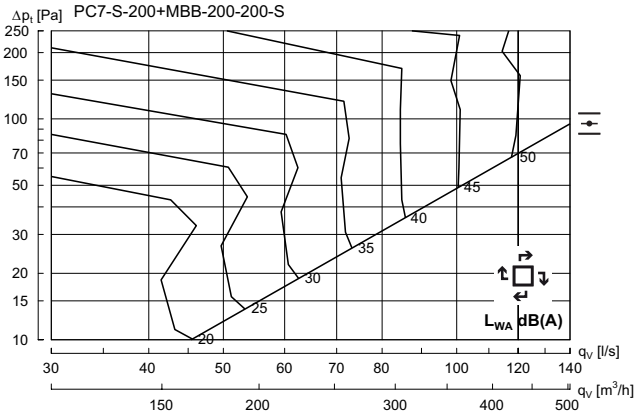


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	11	3	0	-1	-6	-10	-14	-20

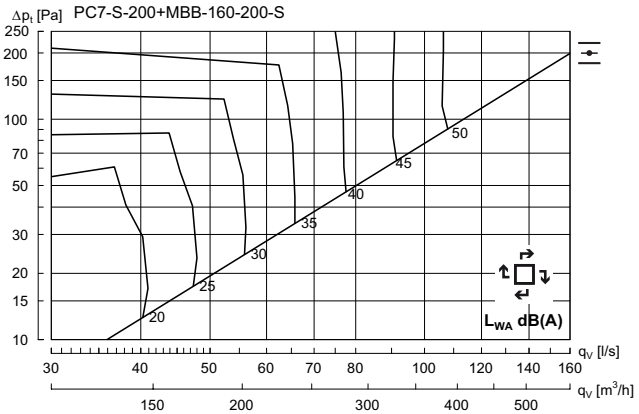
Perforated diffuser PC7

Technical data

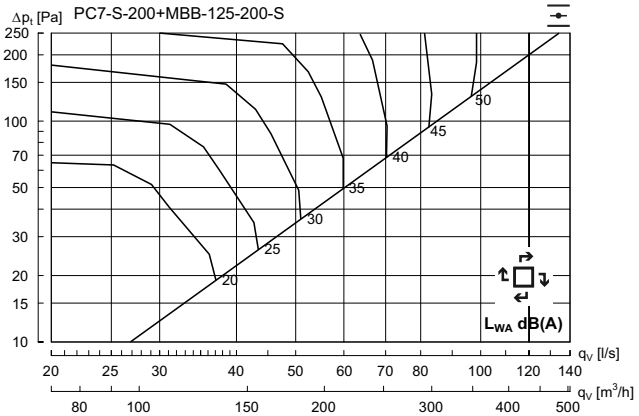
PC7 200 + MBB - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	11	-1	-4	0	-4	-19	-26	-31

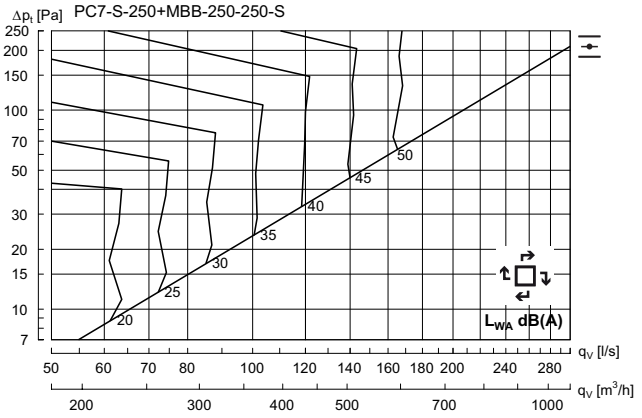


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	11	2	-2	-1	-4	-16	-24	-29

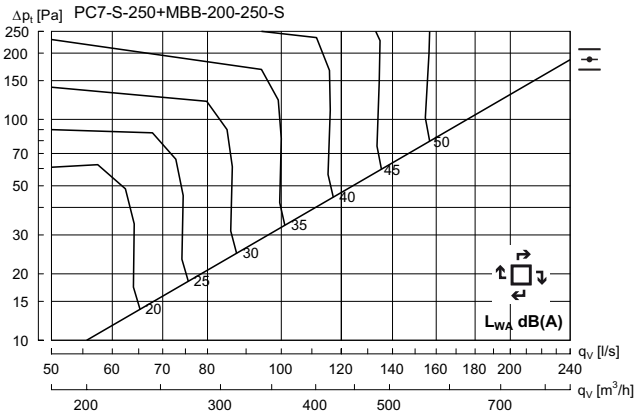


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	6	5	1	-1	-5	-13	-19	-24

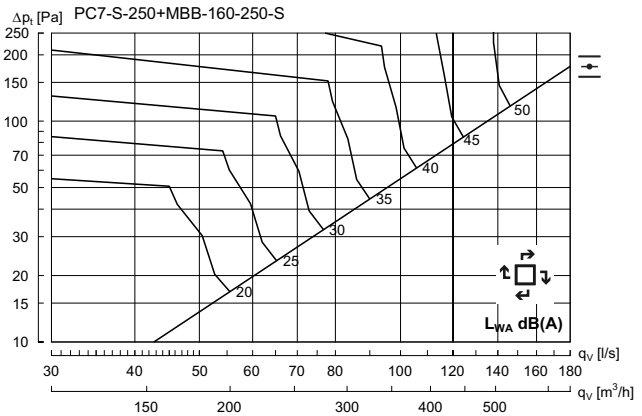
PC7 250 + MBB - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	12	-1	-5	0	-4	-18	-28	-36



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	13	2	-3	-1	-4	-16	-24	-29

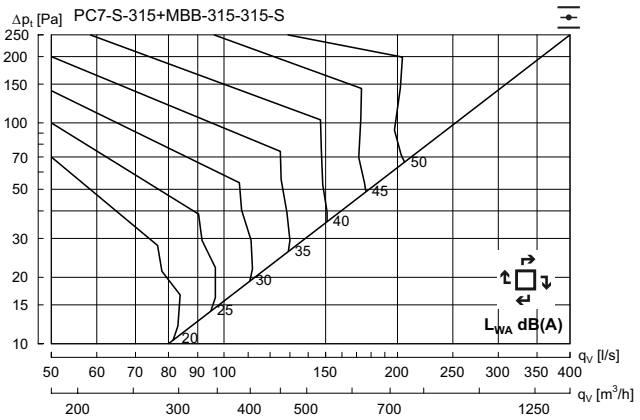


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	12	4	1	-2	-4	-13	-20	-26

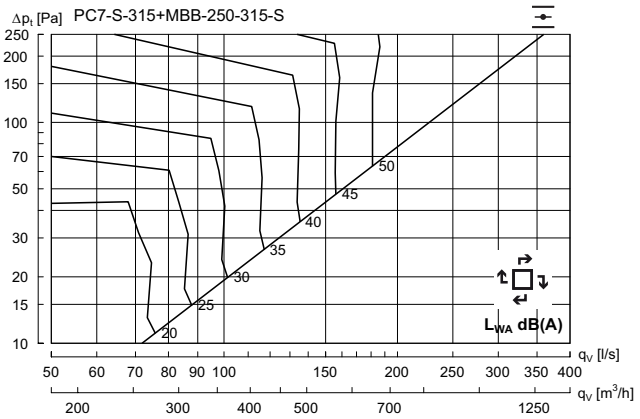
Perforated diffuser PC7

Technical data

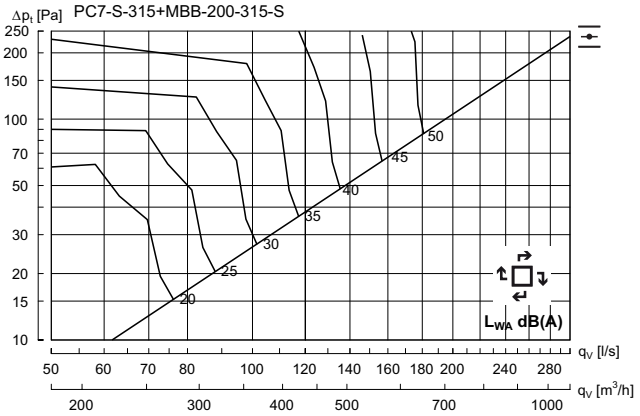
PC7 315 + MBB - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	12	1	-2	0	-5	-18	-23	-32



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	9	0	-2	0	-4	-16	-25	-34



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	12	4	-1	-1	-4	-14	-21	-27

Swirl diffuser

RC14

Description

RC14 is a circular swirl diffuser with fixed bars. The diffuser can be used for both supply air and exhaust. The swirl pattern ensures high induction and a large dynamic range, and is therefore ideal for the horizontal supply of very cold air. Installing this diffuser in a plenum box type MBB can help to achieve a stable flow of air to the diffuser as well as realise the potential for individual adjustment.

- Large dynamic range
- High induction
- Suitable for cooling at very low temperatures
- Can be used for both supply and exhaust air.

Maintenance

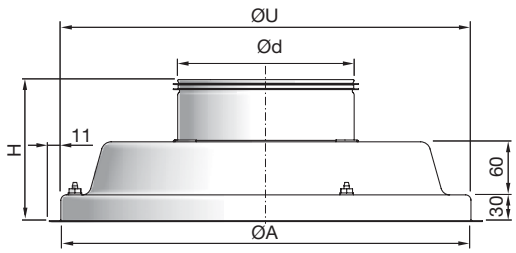
The face plate and swirl insert can be removed to enable cleaning of internal parts or to gain access to the duct or box. The visible parts of the diffuser can be wiped with a damp cloth.

Order code

Product	**RC14**	**a**	**bbb**
Type			
RC14			
Functional use			
S = Supply air			
E = Exhaust			
Connection dim.			
Ød 160-315			

Example: RC14-S-250

Dimensions



RC14 Ød	ØA	H	ØU*	Weight
mm	mm	mm	mm	kg
160	360	140	370	5.30
200	360	140	370	5.40
250	460	140	470	7.40
315	540	140	550	8.10

* ØU = ceiling grid opening

Ød 315, No mounting holes for MBB !

RC14

Materials and finish

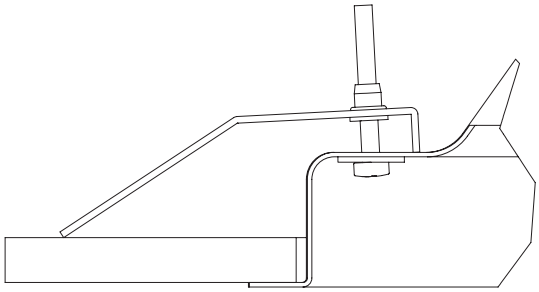
Material: Galvanised steel
Standard finish: Powder-coated
Standard colour: RAL 9010 Gloss 30

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

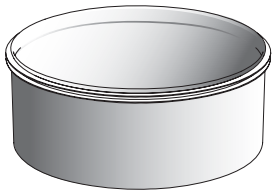
Swirl diffuser RC14

Accessories

Mounting brackets DCZ



Extension piece MBZ

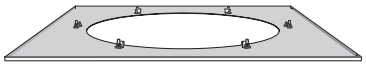


Order code - accessoreies

Product	aaa	bbb
Type		
Size		

Example: DCZ-250

Module plate LM



Order code - module plate

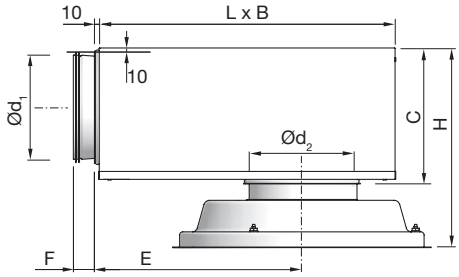
Product	LM	a	RC14	ccc
Type				
Ceiling system				
Diffuser				
Size				

Example: LM-1-RC14-250
Ceiling system - see introductory summary.

Dimensions

Plenum box MBB

RC14 + MBB



RC14 + MBB duct Ød1 mm	RC14 Ød2 mm	B mm	C mm	E mm	F mm	H* mm	L mm
100	160	260	159	216	50	250 - 290	310
125	160	310	184	262	50	275 - 315	376
125	200	310	184	262	50	275 - 315	376
160	160	380	220	323	50	309 - 349	459
160	200	380	220	323	50	309 - 349	459
160	250	380	220	323	50	309 - 349	459
200	200	460	259	396	70	350 - 390	565
200	250	460	259	396	70	350 - 390	565
200	315	460	259	396	70	350 - 390	565
250	250	540	309	486	70	400 - 440	698
250	315	540	309	486	70	400 - 440	698
315	315	540	373	646	70	465 - 505	858

* Using accessory MBZ the H dimension will increase:
$Ød_2$ = 160 - 200 mm => H +40 mm
$Ød_2$ = 250 - 315 mm => H +60 mm

Order code

Product	MBB	aaa	bbb	c
Type				
MBB				
Duct connection $Ød_1$				
Ø100-315				
Diffuser dimension $Ød_2$				
Ø160-315				
Functional use				
S = Supply air				
E = Exhaust				

Example: RC14-S-250-MBB-200-250-S

Swirl diffuser RC14

Technical data

Capacity

Air flow q_v [l/s] and [m^3/h], total pressure Δp_t [Pa], throw $l_{0.2}$ [m] and sound power level L_{WA} [dB(A)] can be seen in the diagrams.

Frequency-related sound effect level

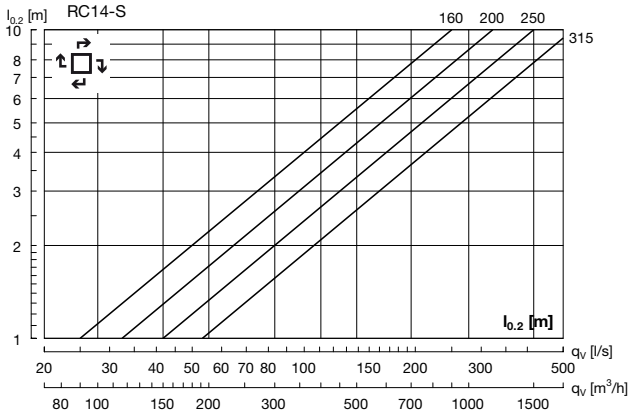
The sound effect level in the frequency band is defined as $L_{WA}+K_{ok}$. K_{ok} values are specified in charts beneath the diagrams on the following pages.

Quick selection, supply air

RC14 + MBB		$\Delta p_t \geq 50$ Pa		$\Delta p_t \geq 50$ Pa	
duct	RC14	30 dB(A)		35 dB(A)	
$Ød_1$	$Ød_2$	l/s	m^3/h	l/s	m^3/h
100	160	37	133	44	158
125	160	44	158	54	194
125	200	50	180	62	223
160	160	48	173	57	205
160	200	56	202	67	241
160	250	67	241	84	302
200	200	62	223	74	266
200	250	82	295	96	346
200	315	102	367	126	454
250	250	92	331	106	382
250	315	117	421	139	500
315	315	141	508	166	598

Throw $l_{0.2}$

Throw $l_{0.2}$ [m] is specified at a terminal velocity of 0.2 m/s.



Sound attenuation

Sound attenuation of the diffusers ΔL from duct to room, including end reflection - see table below.

RC14 + MBB									
duct	RC14	Centre frequency Hz							
$Ød_1$	$Ød_2$	63	125	250	500	1K	2K	4K	8K
100	160	18	15	5	11	18	19	18	19
125	160	15	13	8	17	17	17	18	20
125	200	13	11	6	13	14	17	17	19
160	160	16	15	11	21	18	20	21	20
160	200	17	15	9	21	18	19	20	20
160	250	17	14	4	18	14	16	18	19
200	200	14	11	8	15	19	17	20	18
200	250	14	10	5	14	18	14	18	17
200	315	14	8	3	10	16	15	17	16
250	250	14	9	7	15	18	17	19	18
250	315	12	7	6	14	16	15	17	17
315	315	8	9	9	13	17	16	18	22

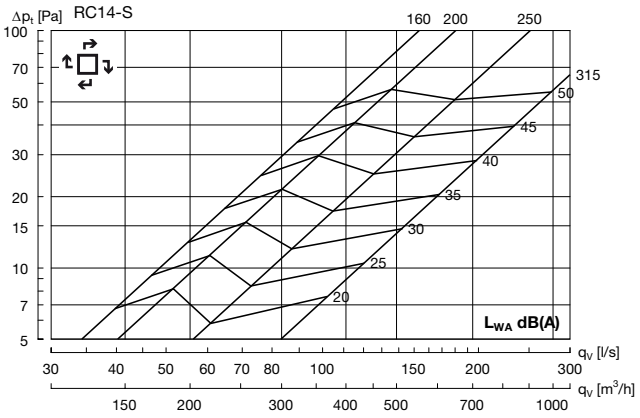
Balancing

Balancing data is contained in a separate brochure.

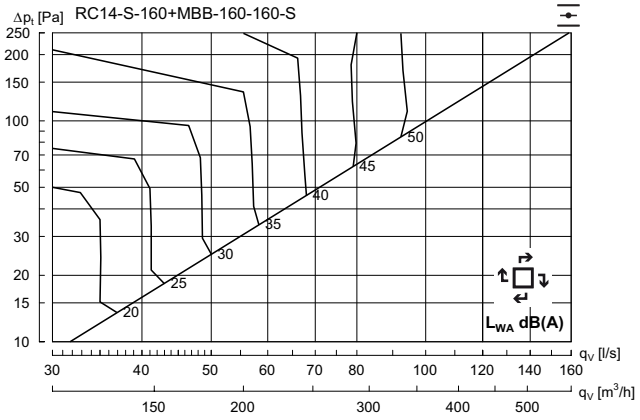
Swirl diffuser RC14

Technical data

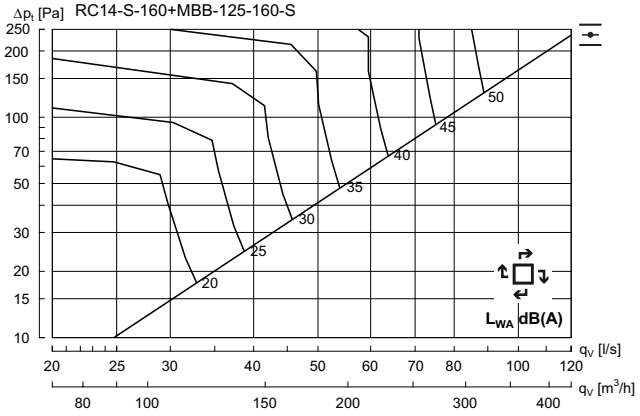
RC14 without box – supply air



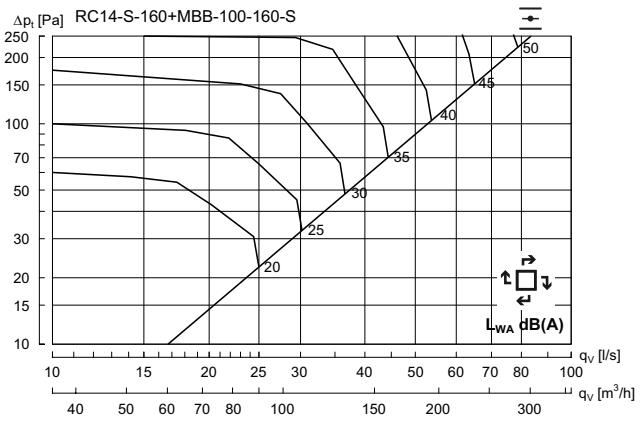
RC14 - 160 + MBB - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	6	2	-3	0	-4	-15	-26	-32



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	9	5	0	-1	-5	-13	-19	-25



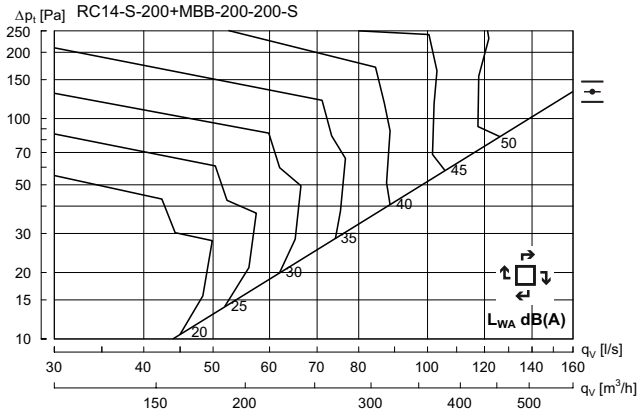
Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	9	4	0	0	-6	-12	-16	-20

Swirl diffuser

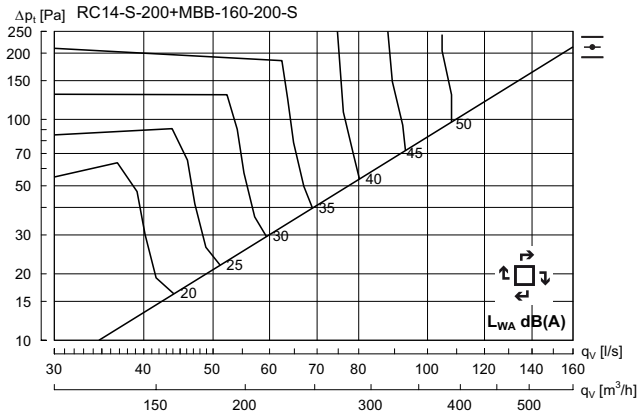
RC14

Technical data

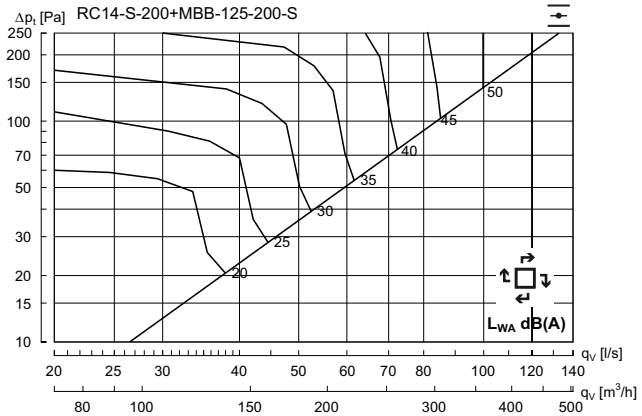
RC14 - 200 + MBB - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	11	3	-3	-1	-5	-12	-24	-33

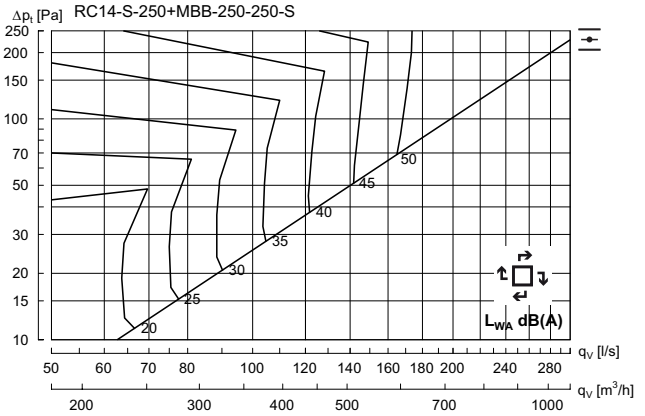


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	14	4	-2	-2	-4	-12	-22	-30

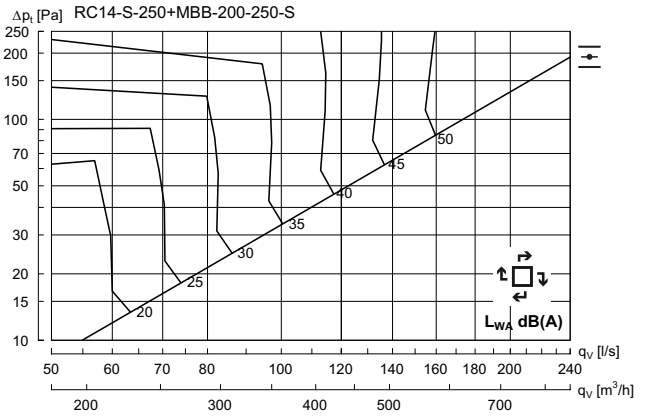


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	8	6	1	-2	-6	-12	-17	-23

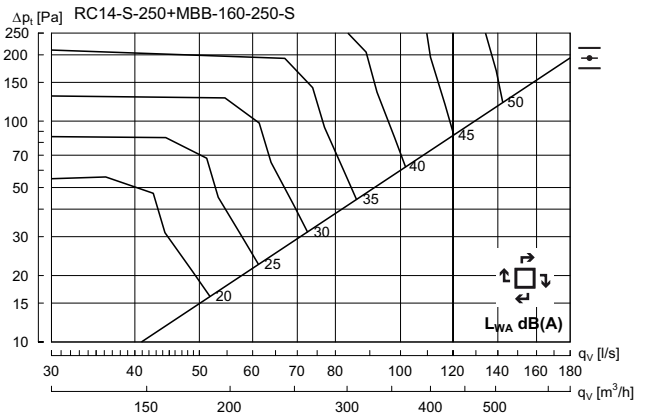
RC14 - 250 + MBB - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	10	1	-4	-1	-4	-14	-26	-37



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	9	5	-3	-2	-3	-12	-24	-32

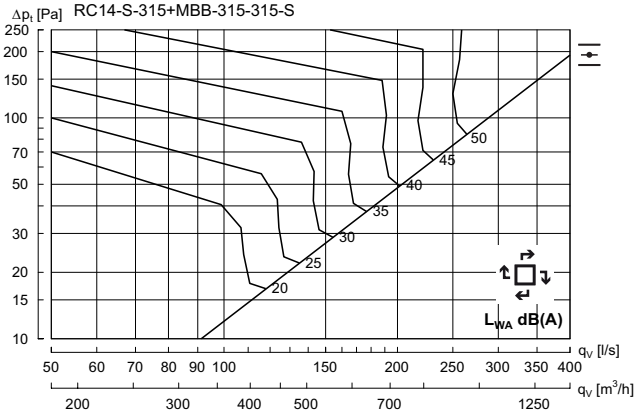


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	13	4	-1	-3	-4	-13	-21	-26

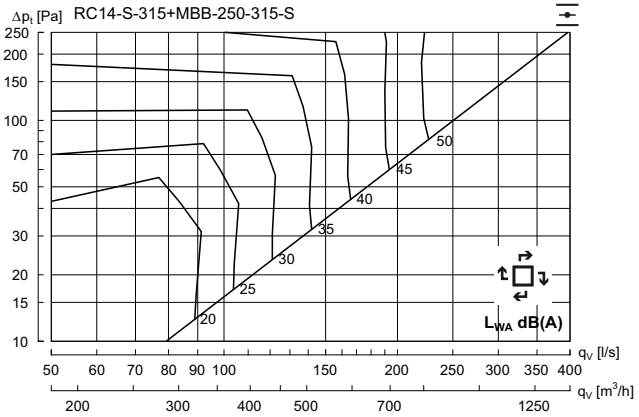
Swirl diffuser RC14

Technical data

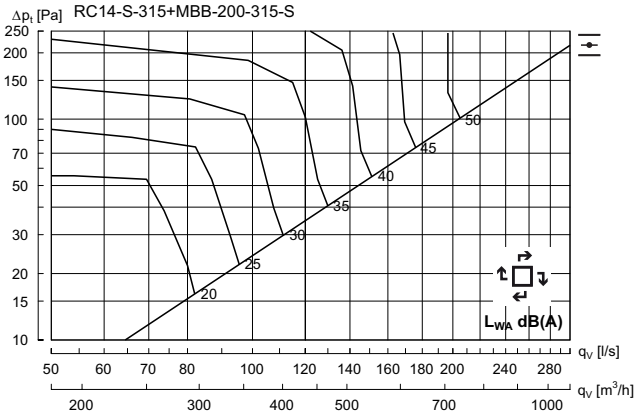
RC14 - 315 + MBB - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	14	3	-1	-1	-4	-13	-24	-33



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	11	3	-2	-2	-4	-11	-21	-30



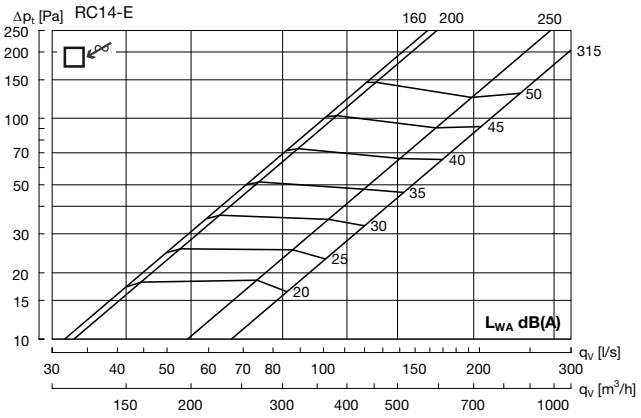
Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	10	7	-1	-2	-4	-13	-21	-27

Swirl diffuser

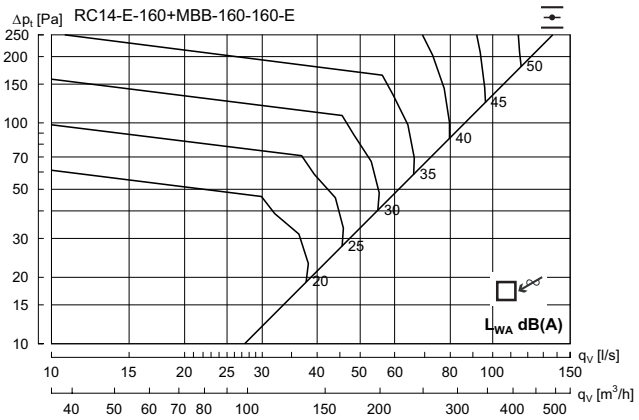
RC14

Technical data

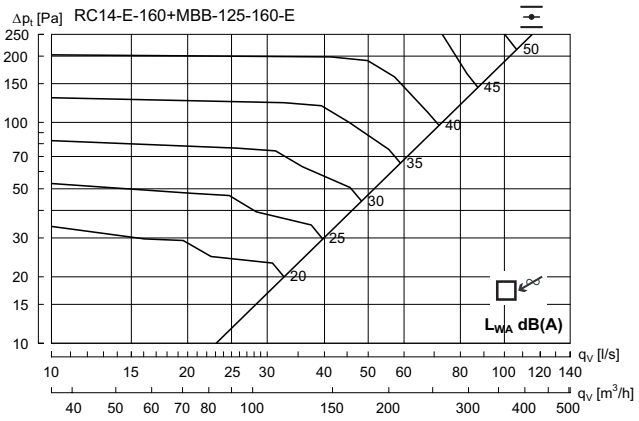
RC14 without box – Exhaust air



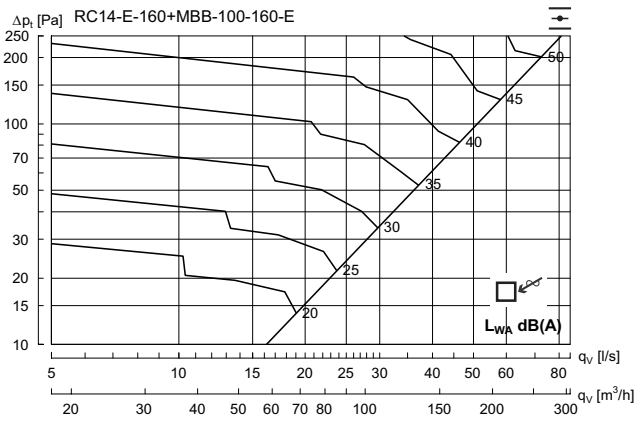
RC14 - 160 + MBB - Exhaust air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	14	4	-2	-2	-4	-13	-20	-26



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	13	6	1	-1	-6	-13	-16	-22

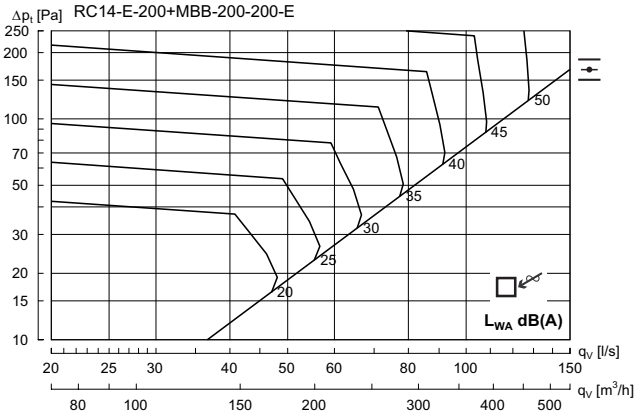


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	9	0	4	-1	-10	-12	-18	-24

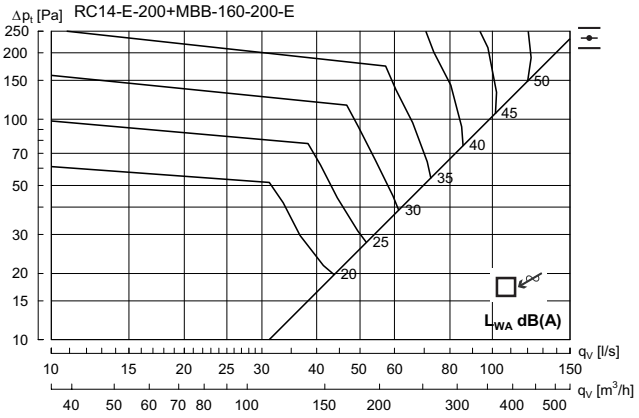
Swirl diffuser RC14

Technical data

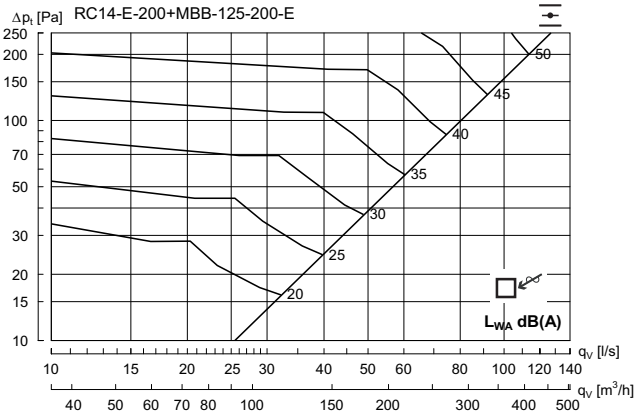
RC14 - 200 + MBB - Exhaust air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	13	2	-4	-2	-3	-13	-22	-31

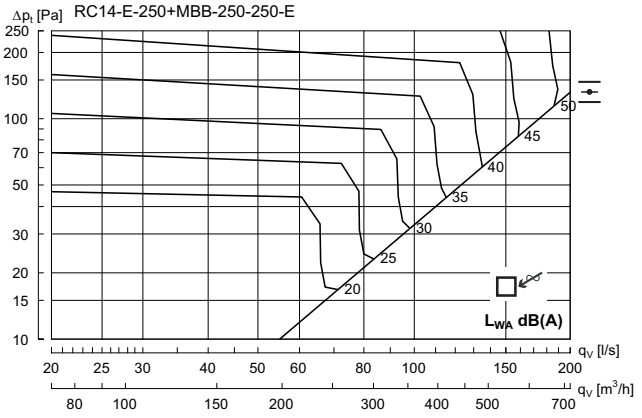


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	16	5	-2	-3	-4	-12	-21	-26

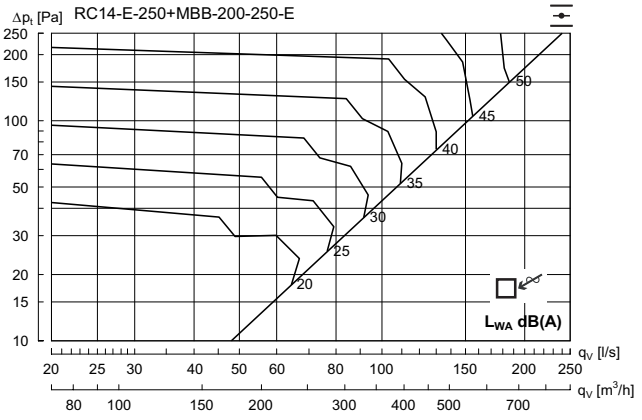


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	12	3	1	-1	-6	-12	-17	-23

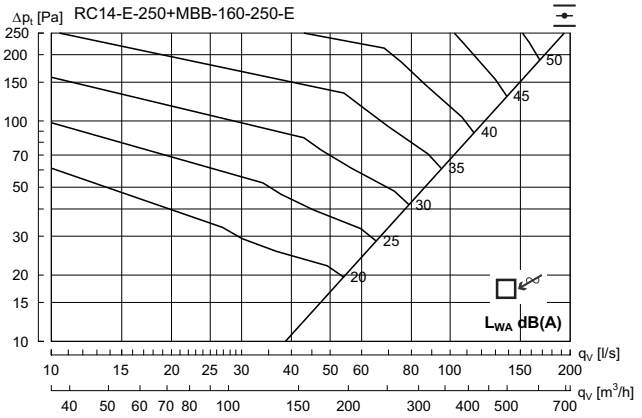
RC14 - 250 + MBB - Exhaust air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	13	4	0	-2	-4	-12	-22	-31



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	12	4	0	-2	-4	-11	-19	-27



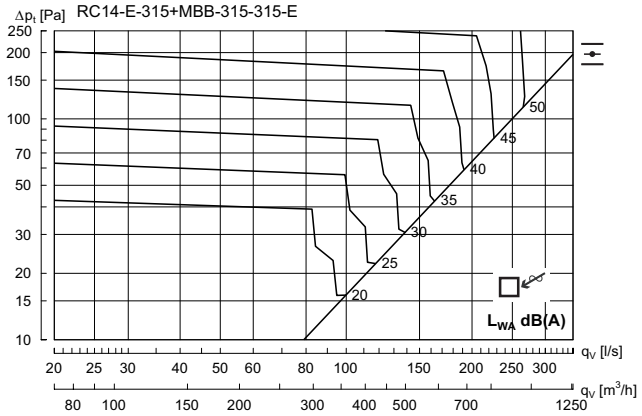
Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	15	6	0	-2	-6	-11	-16	-22

Swirl diffuser

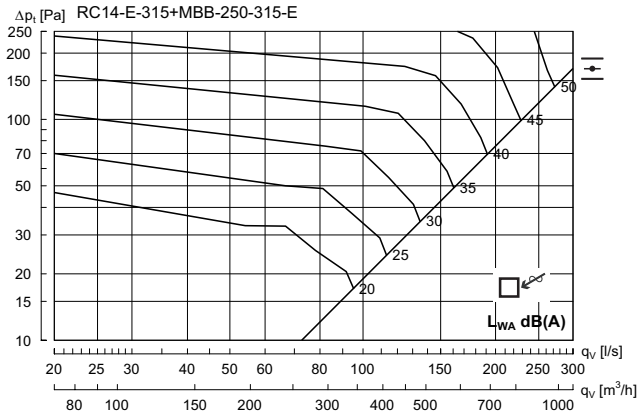
RC14

Technical data

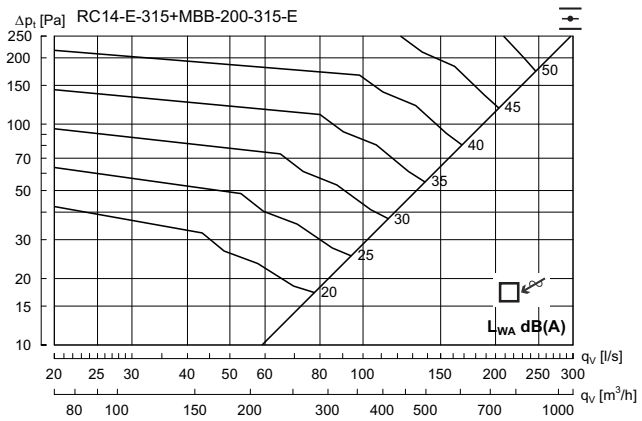
RC14 - 315 + MBB - Exhaust air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	10	3	1	-2	-4	-16	-24	-34



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	9	5	1	-2	-5	-13	-18	-26



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	14	6	1	-2	-6	-11	-16	-24

Swirl diffuser

RC15

Description

RC15 is a circular swirl diffuser with adjustable bars. The diffuser can be used for both supply and exhaust air. The swirl pattern ensures high induction and a large dynamic range, and is therefore ideal for the horizontal supply of very cold air. The diffuser can also be set to a vertical supply air pattern, enabling supply of heated air. Installing this diffuser in a plenum box type MBB can help to achieve a stable flow of air to the diffuser as well as realise the potential for individual adjustment.

- Large dynamic range
- High induction
- Suitable for cooling at very low temperatures
- Horizontal or vertical supply air pattern
- Can be used for both supply air and exhaust

Maintenance

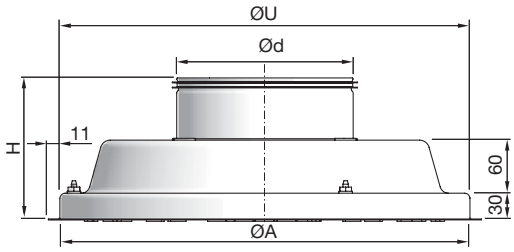
The face plate and swirl insert can be removed to enable cleaning of internal parts or to gain access to the duct or box. The visible parts of the diffuser can be wiped with a damp cloth.

Order code

Product	**RC15**	**a**	**bbb**
Type			
RC15			
Functional use			
S = Supply air			
E = Exhaust Without bars			
Connection dim.			
Ød 160-315			

Example: RC15-S-160

Dimensions



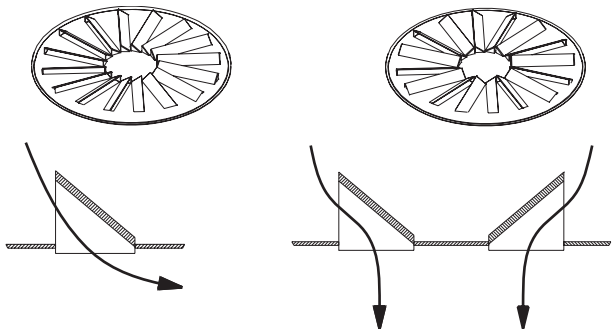
RC15 Ød	ØA	H	ØU*	Weight
mm	mm	mm	mm	kg
160	360	140	370	5.30
200	360	140	370	5.40
250	460	140	470	7.40
315	540	140	550	8.10

* ØU = ceiling grid opening

Ød 315, No mounting holes for MBB !

Bar settings

Horizontal **Vertical**



RC15-S **RC15-E**

Materials and finish

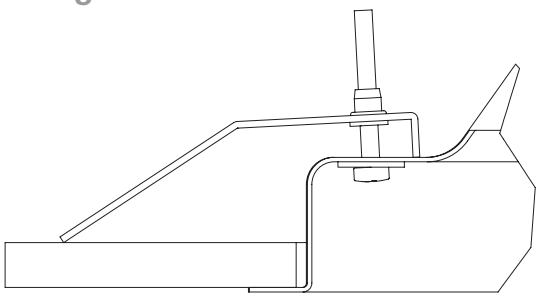
Material:	Galvanised steel
Standard finish:	Powder-coated
Standard colour:	RAL 9010 Gloss 30
Bars (Only RC15-S):	Black ABS plastic

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

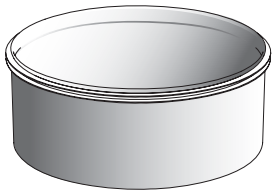
Swirl diffuser RC15

Accessories

Mounting brackets DCZ



Extension piece MBZ

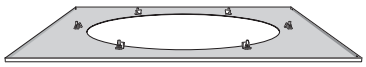


Order code - accessoreies

Product	aaa	bbb
Type		
Size		

Example: DCZ-160

Module plate LM



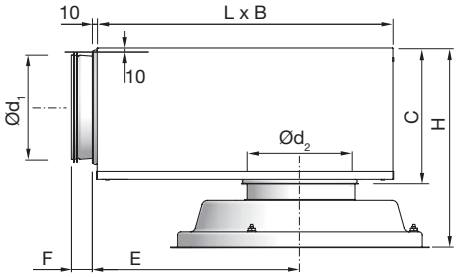
Order code - module plate

Product	LM	a	RC15	ccc
Type				
Ceiling system				
Diffuser				
Size				

Example: LM-1-RC15-160
Ceiling system - see introductory summary

Plenum box MBB

RC15 + MBB



RC15 + MBB							
duct	RC15	B	C	E	F	H*	L
Ød1 mm	Ød2 mm	mm	mm	mm	mm	mm	mm
100	160	260	159	216	50	250 - 290	310
125	160	310	184	262	50	275 - 315	376
125	200	310	184	262	50	275 - 315	376
160	160	380	220	323	50	309 - 349	459
160	200	380	220	323	50	309 - 349	459
160	250	380	220	323	50	309 - 349	459
200	200	460	259	396	70	350 - 390	565
200	250	460	259	396	70	350 - 390	565
200	315	460	259	396	70	350 - 390	565
250	250	540	309	486	70	400 - 440	698
250	315	540	309	486	70	400 - 440	698
315	315	540	373	646	70	465 - 505	858

* Using accessory MBZ the H dimension will increase:
$Ød_2$ = 160 - 200 mm => H +40 mm
$Ød_2$ = 250 - 315 mm => H +60 mm

Order code

Product	MBB	aaa	bbb	c
Type				
MBB				
Duct connection $Ød_1$				
Ø100-315				
Diffuser dimension $Ød_2$				
Ø160-315				
Functional use				
S = Supply air				
E = Exhaust				

Example: RC15-S-160-MBB-125-160-S

Swirl diffuser RC15

Technical data

Capacity

Air flow q_v [l/s] and [m^3/h], total pressure Δp_t [Pa], throw $l_{0.2}$ [m] and sound power level L_{WA} [dB(A)] can be seen in the diagrams.

Frequency-related sound effect level

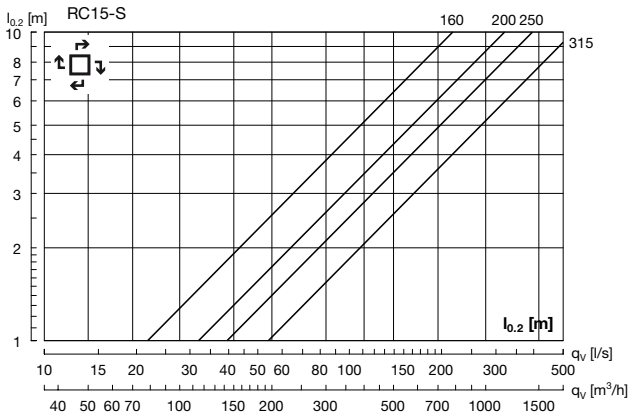
The sound effect level in the frequency band is defined as $L_{WA}+K_{ok}$. K_{ok} values are specified in charts beneath the diagrams on the following pages.

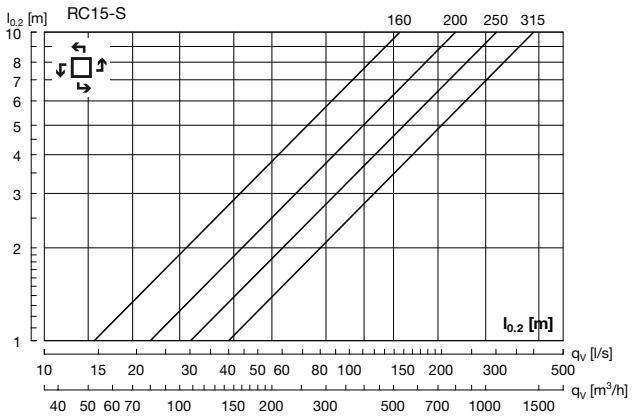
Quick selection, supply air

RC15 + MBB		$\Delta p_t \geq 50$ Pa		$\Delta p_t \geq 50$ Pa	
duct	RC15	30 dB(A)		35 dB(A)	
$Ød_1$	$Ød_2$	l/s	m^3/h	l/s	m^3/h
100	160	36	130	44	158
125	160	44	158	54	194
125	200	49	176	59	212
160	160	47	169	56	202
160	200	54	194	64	230
160	250	69	248	90	324
200	200	56	202	66	238
200	250	82	295	99	356
200	315	101	364	125	450
250	250	90	324	106	382
250	315	113	407	137	493
315	315	138	497	163	587

Throw $l_{0.2}$

Throw $l_{0.2}$ [m] is specified at a terminal velocity of 0.2 m/s.





Sound attenuation

Sound attenuation of the diffusers ΔL from duct to room, including end reflection - see table below.

RC15 + MBB									
duct	RC15	Centre frequency Hz							
$Ød_1$	$Ød_2$	63	125	250	500	1K	2K	4K	8K
100	160	17	15	5	12	19	20	20	21
125	160	16	14	8	18	18	20	20	21
125	200	11	12	6	14	14	19	18	19
160	160	16	15	11	22	20	22	21	21
160	200	16	15	9	22	19	21	20	21
160	250	18	14	4	17	14	16	18	19
200	200	13	12	8	17	20	19	21	18
200	250	12	9	6	14	19	16	18	17
200	315	11	8	4	10	17	16	19	17
250	250	13	8	7	15	19	19	18	18
250	315	12	8	6	14	17	17	18	18
315	315	8	9	9	14	18	18	18	23

Balancing

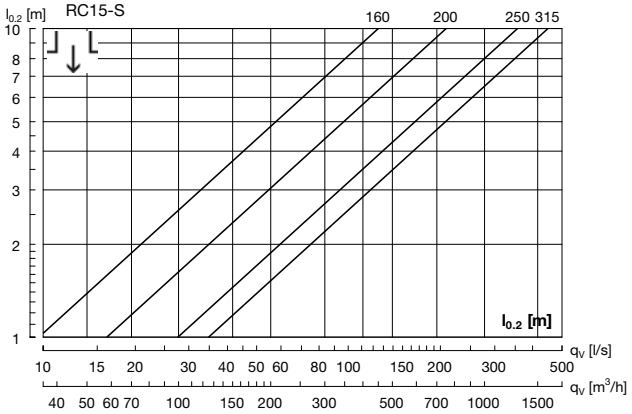
Balancing data is contained in a separate brochure.

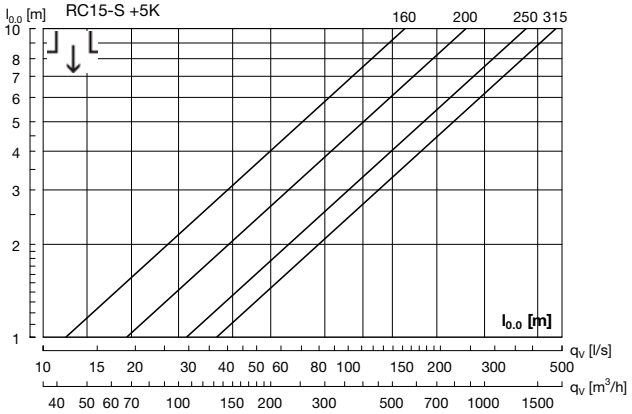
Swirl diffuser RC15

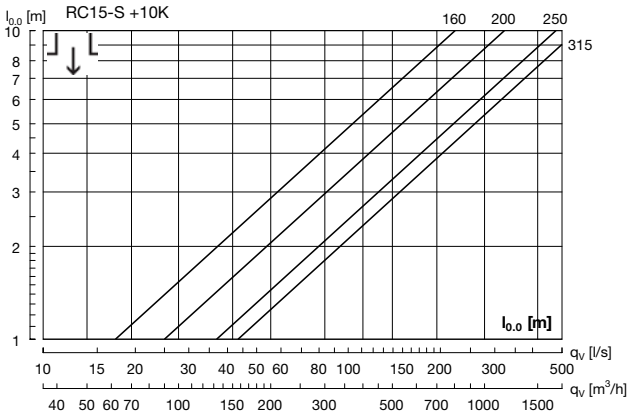
Technical data

Throws/Turning points

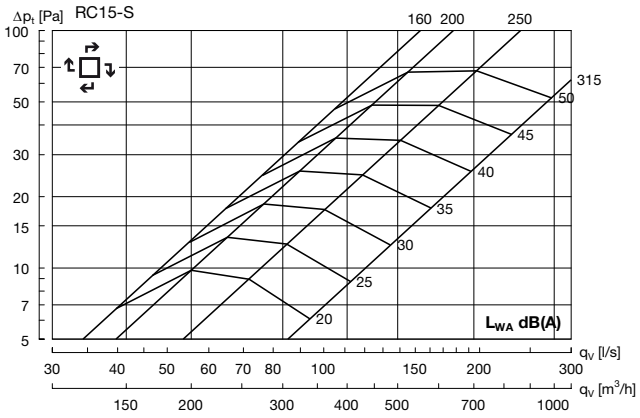
Throw $l_{0.2}$ [m] is specified at a terminal velocity of 0.2 m/s. Turning point $l_{0.0}$ [m] is specified for +5 K and +10 K respectively.







RC15 without box – supply air

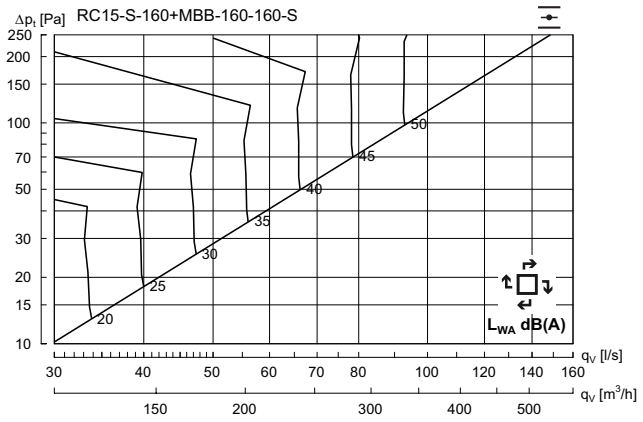


Swirl diffuser

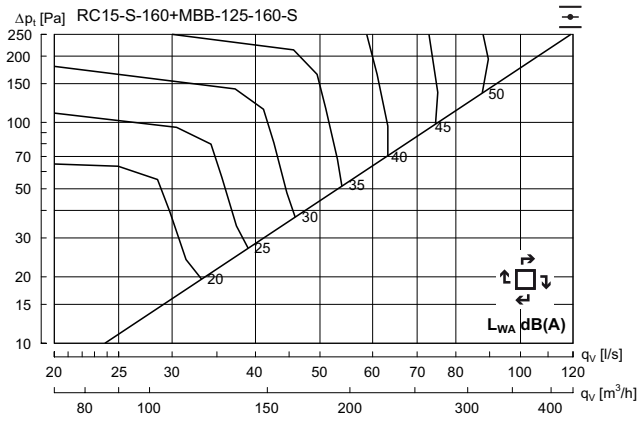
RC15

Technical data

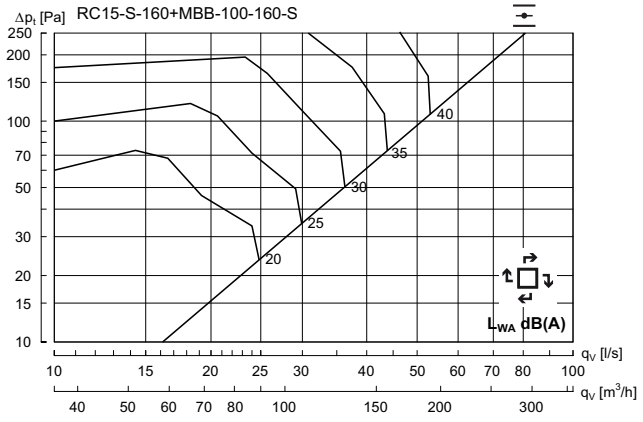
RC15 160 + MBB - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	10	2	-4	0	-5	-17	-23	-31

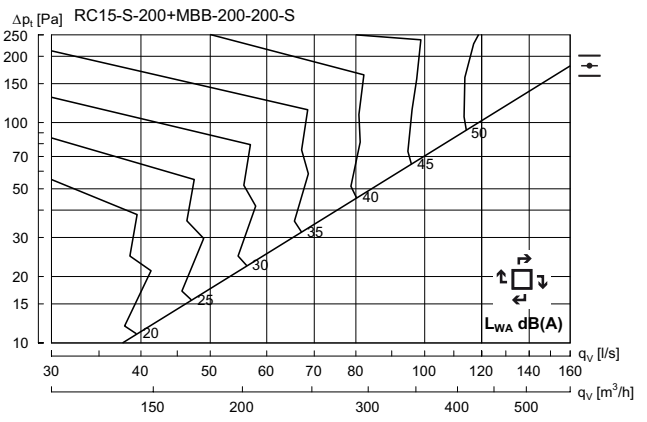


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	10	4	-1	0	-6	-13	-18	-24

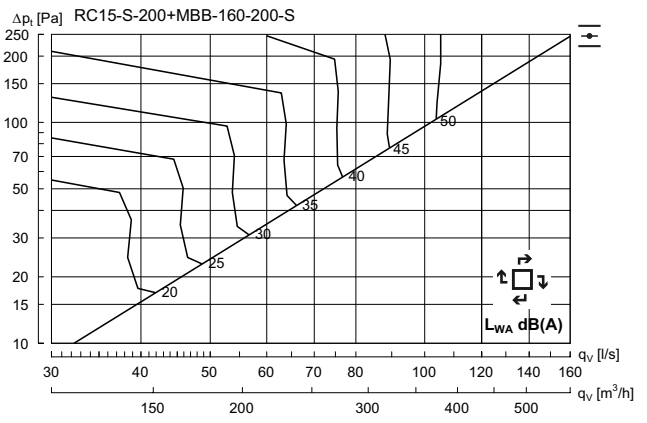


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	12	4	2	-1	-8	-12	-16	-19

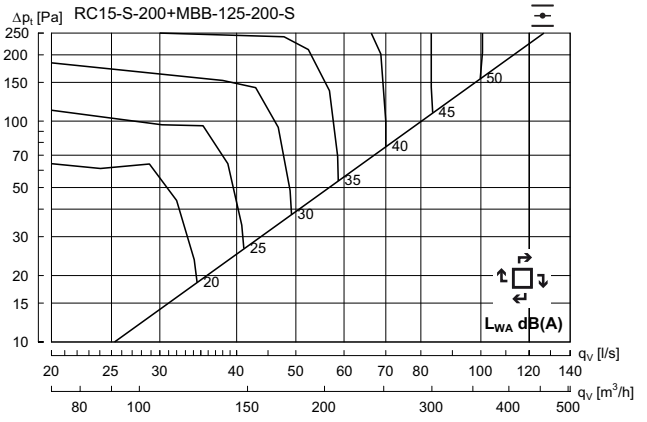
RC15 - 200 + MBB - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	8	3	-4	-1	-4	-15	-22	-31



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	9	3	-1	-2	-4	-14	-21	-29

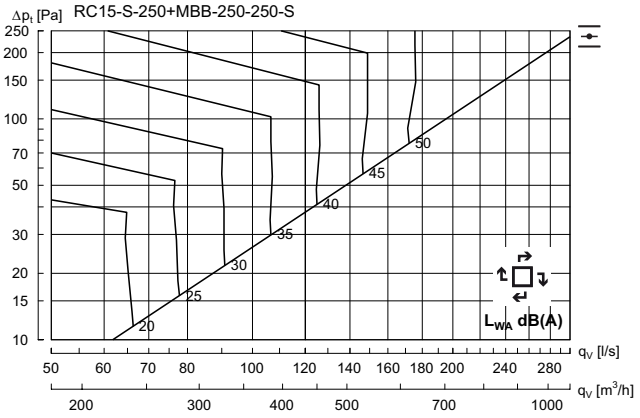


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	7	5	0	-1	-5	-13	-17	-24

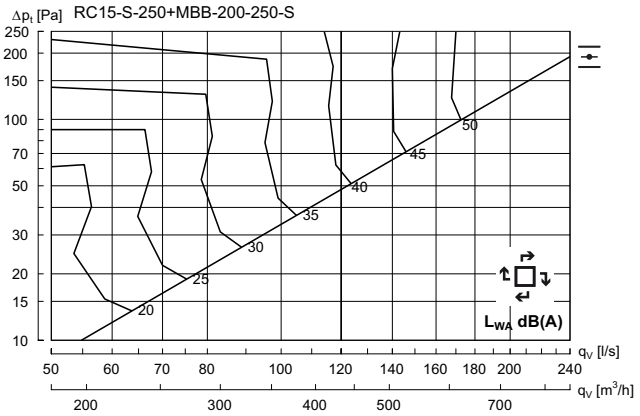
Swirl diffuser RC15

Technical data

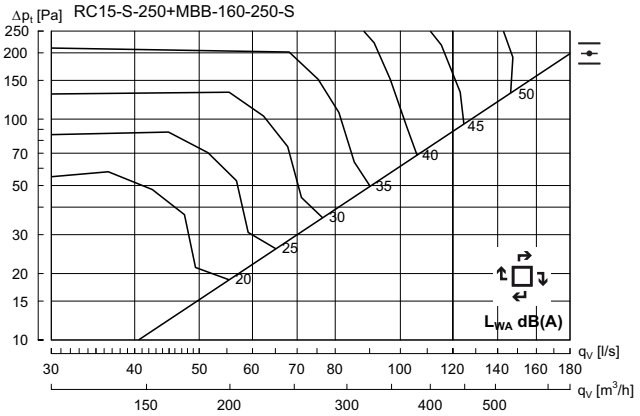
RC15 - 250 + MBB - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	12	1	-4	0	-4	-16	-24	-20

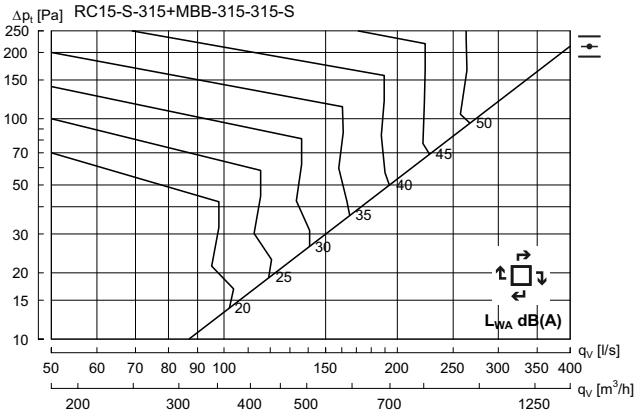


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	10	4	-3	-2	-3	-15	-21	-29

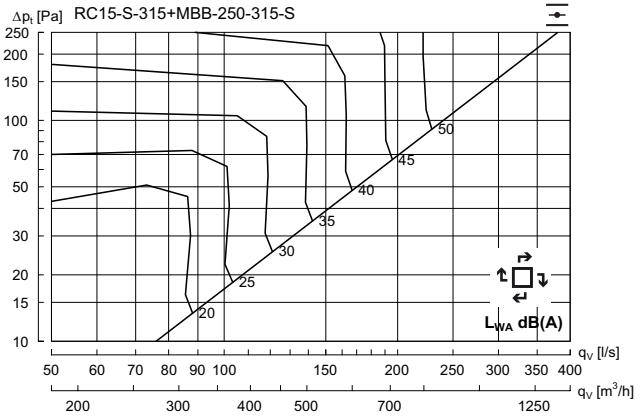


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	15	5	0	-3	-4	-13	-19	-25

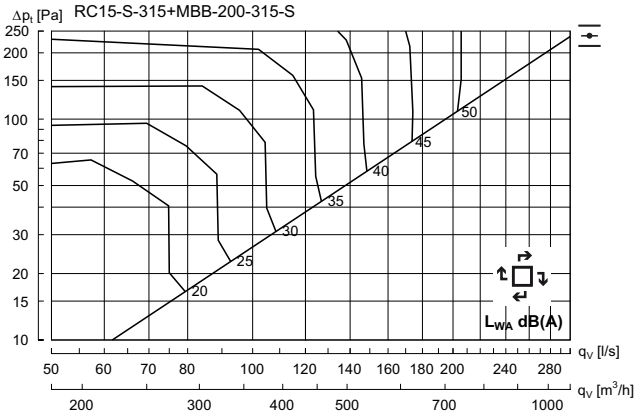
RC15 - 315 + MBB - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	14	3	-2	-2	-4	-13	-22	-31



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	11	3	-2	-1	-4	-13	-19	-28



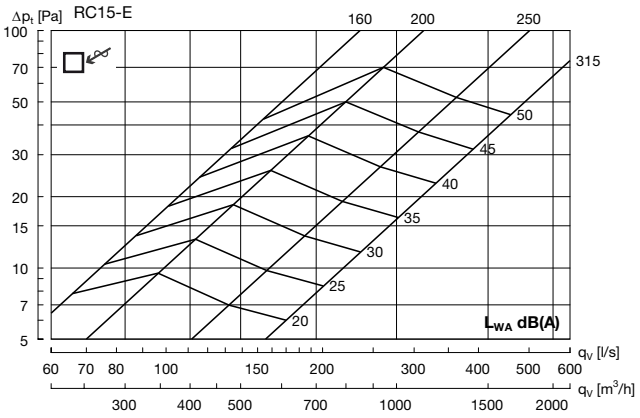
Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	9	7	-1	-2	-5	-13	-19	-26

Swirl diffuser

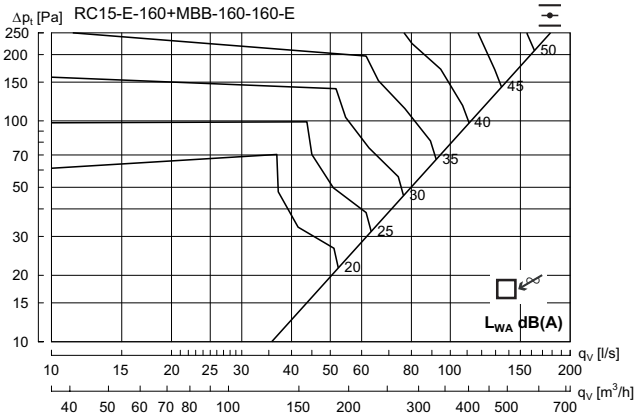
RC15

Technical data

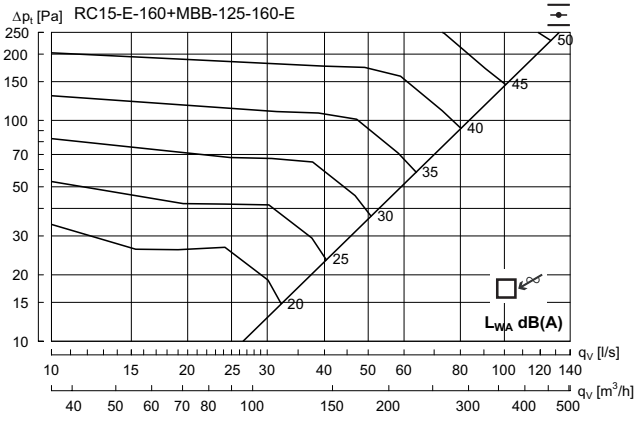
RC15 without box – Exhaust air



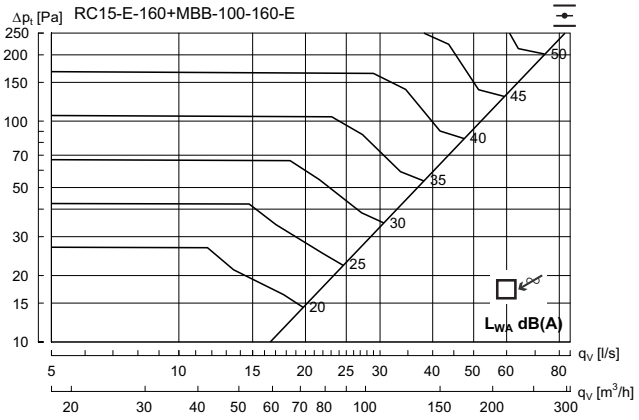
RC15 160 + MBB - Exhaust air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	16	6	0	-3	-6	-11	-16	-21



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	13	6	1	-2	-7	-12	-14	-22

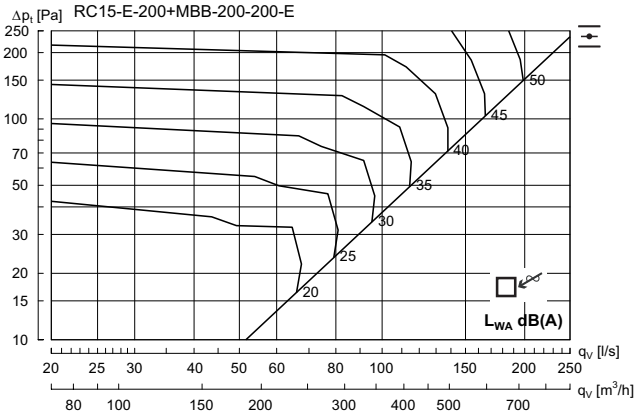


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	11	4	3	0	-9	-13	-17	-23

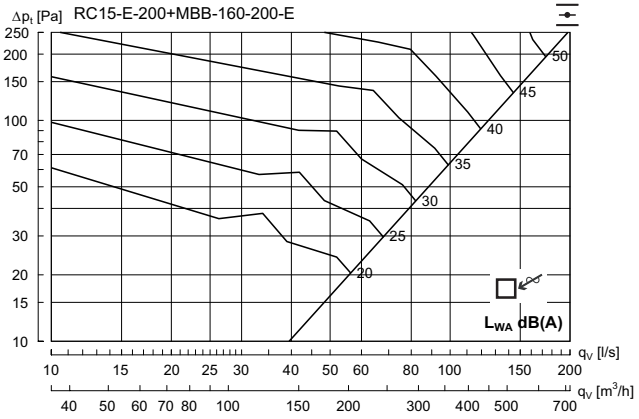
Swirl diffuser RC15

Technical data

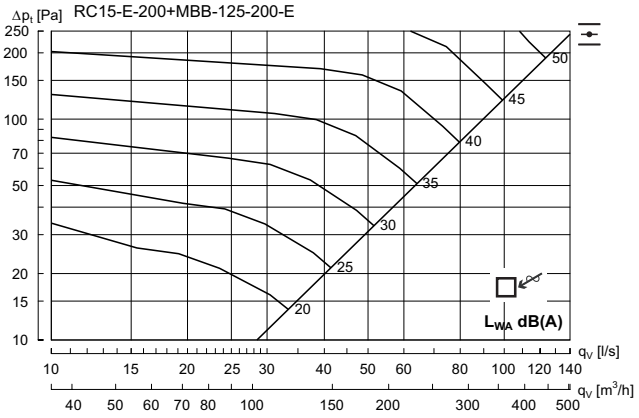
RC15 200 + MBB - Exhaust air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	14	5	0	-2	-5	-11	-16	-24



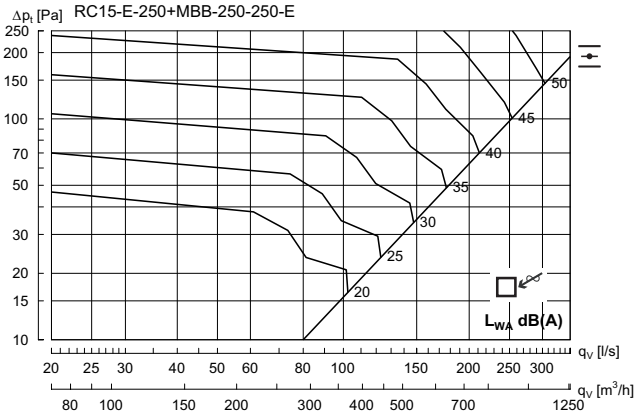
Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	17	6	-1	-3	-6	-10	-14	-19



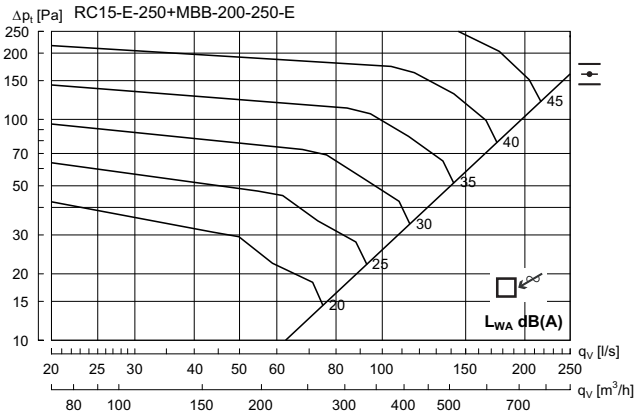
Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	14	3	1	-1	-6	-12	-15	-22

Technical data

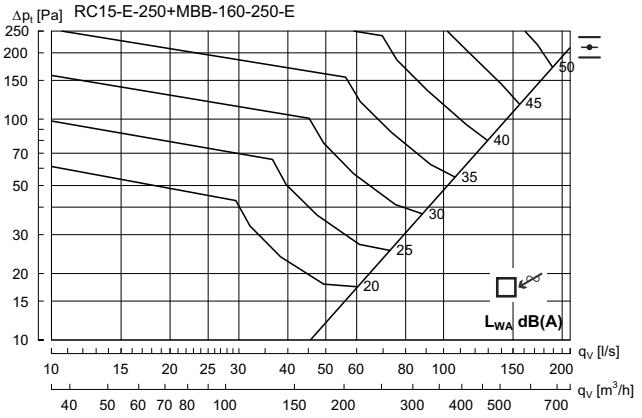
RC15 - 250 + MBB - Exhaust air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	12	6	2	-3	-6	-12	-17	-24



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	13	5	0	-3	-6	-10	-14	-23



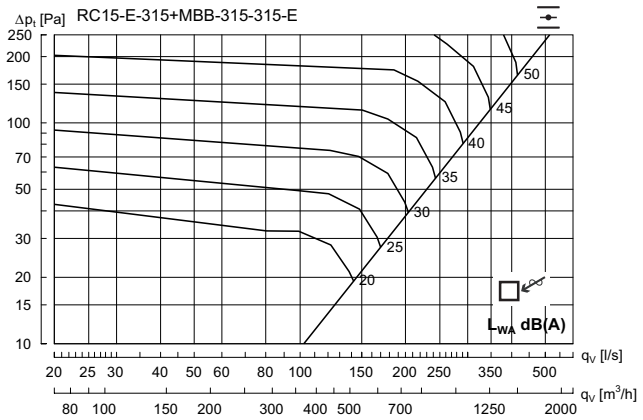
Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	13	7	0	-3	-6	-10	-15	-19

Swirl diffuser

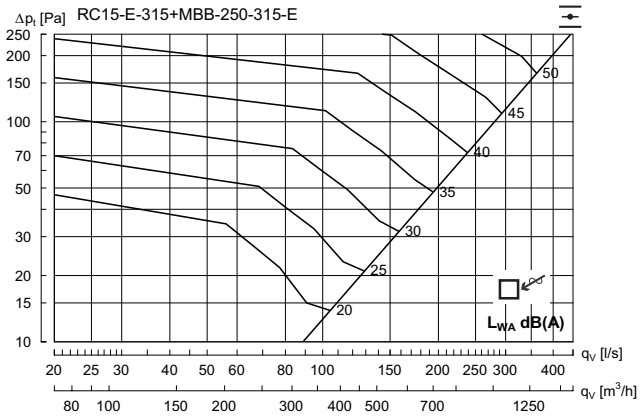
RC15

Technical data

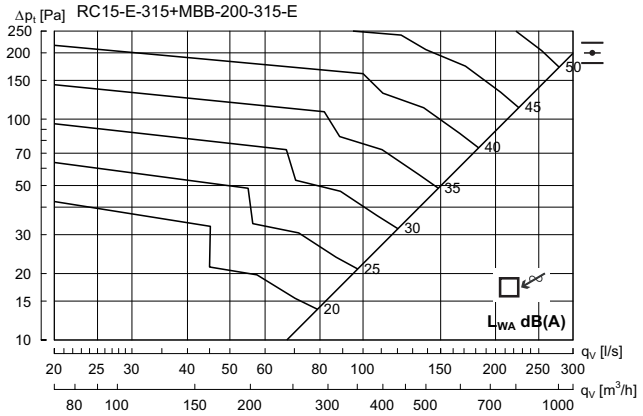
RC15 - 315 + MBB - Exhaust air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	12	5	3	-3	-6	-11	-16	-25



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	9	5	2	-3	-5	-11	-17	-25



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	15	5	1	-3	-5	-10	-15	-23

Nozzle diffuser

NC19

Description

NC19 is a circular diffuser with individually adjustable nozzles. The diffuser is suitable for the horizontal supply of cooled air, where great flexibility in the dispersal pattern is required. The diffuser can also be set to a vertical supply air pattern, enabling supply of heated air. Installing this diffuser in a plenum box type MBB can help to achieve a stable flow of air to the diffuser as well as realise the potential for individual adjustment.

- Adjustable dispersal patterns
- No pressure change for different dispersal patterns
- Suitable for horizontal or vertical supply air patterns

Maintenance

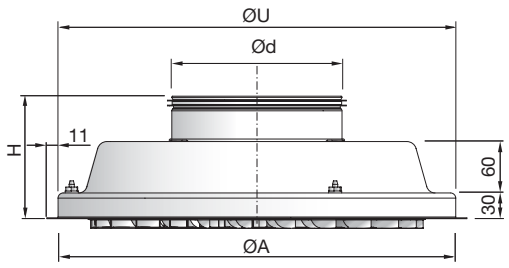
The face plate can be removed to enable cleaning of internal parts or to gain access to the duct or box. The visible parts of the diffuser can be wiped with a damp cloth.

Order code

Product	**NC19**	-	**S**	-	**aaa**
Type						
NC19						
Functional use						
S = Supply air						
Connection dim.						
Ød 125-315						

Example: NC19-S-200

Dimensions



NC19 Ød	ØA	H	ØU*	Weight
mm	mm	mm	mm	kg
125	360	140	370	3.90
160	460	140	470	5.30
200	460	140	470	5.40
250	540	140	550	7.40
315	540	140	550	8.10

* ØU = ceiling grid opening

Ød 315, No mounting holes for MBB !

Materials and finish

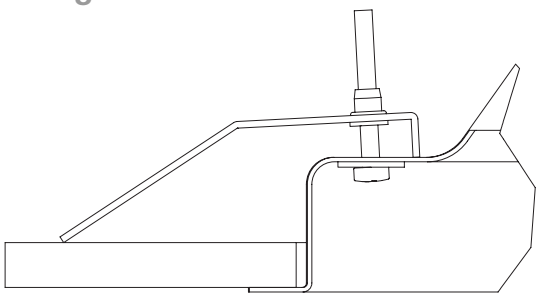
Material:	Galvanised steel
Standard finish:	Powder-coated
Standard colour:	RAL 9010, Gloss 30
Nozzles:	White ABS plastic

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

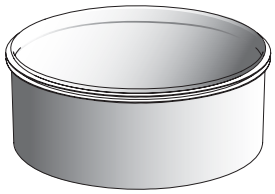
Nozzle diffuser NC19

Accessories

Mounting brackets DCZ



Extension piece MBZ

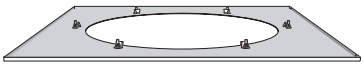


Order code - accessoreies

Product	aaa	bbb
Type		
Size		

Example: DCZ-200

Module plate LM



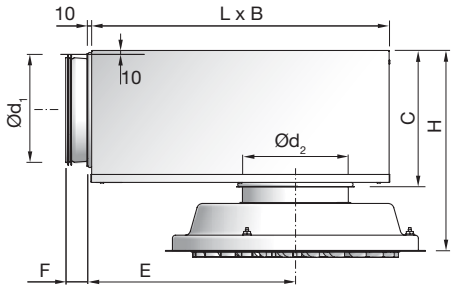
Order code - module plate

Product	LM	a	NC19	ccc
Type				
Ceiling system				
Diffuser				
Size				

Example: LM-1-NC19-200
Ceiling system - see introductory summary

Plenum box MBB

NC19 + MBB



NC19 + MBB duct Ød1 mm	NC19 Ød2 mm	B mm	C mm	E mm	F mm	H* mm	L mm
100	125	260	159	216	50	250 - 290	310
100	160	260	159	216	50	250 - 290	310
125	125	310	184	262	50	275 - 315	376
125	160	310	184	262	50	275 - 315	376
125	200	310	184	262	50	275 - 315	376
160	160	380	220	323	50	309 - 349	459
160	200	380	220	323	50	309 - 349	459
160	250	380	220	323	50	309 - 349	459
200	200	460	259	396	70	350 - 390	565
200	250	460	259	396	70	350 - 390	565
200	315	460	259	396	70	350 - 390	565
250	250	540	309	486	70	400 - 440	698
250	315	540	309	486	70	400 - 440	698
315	315	540	373	646	70	465 - 505	858

* Using accessory MBZ the H dimension will increase:
$Ød_2$ = 125 - 200 mm => H +40 mm
$Ød_2$ = 250 - 315 mm => H +60 mm

Order code

Product	MBB	-	aaa	-	bbb	-	S
Type							
MBB							
Duct connection $Ød_1$							
Ø100-315							
Diffuser dimension $Ød_2$							
Ø125-315							
Functional use							
S = Supply air							

Example: NC19-S-200-MBB-200-200-S

Nozzle diffuser NC19

Technical data

Capacity

Air flow q_v [l/s] and [m³/h], total pressure Δp_t [Pa], throw $l_{0.2}$ [m] and sound power level L_{WA} [dB(A)] can be seen in the diagrams.

Frequency-related sound effect level

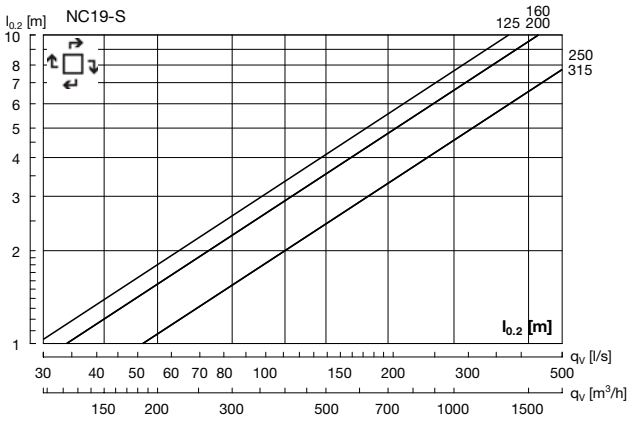
The sound effect level in the frequency band is defined as $L_{WA}+K_{ok}$. K_{ok} values are specified in chart beneath the diagrams on the following pages.

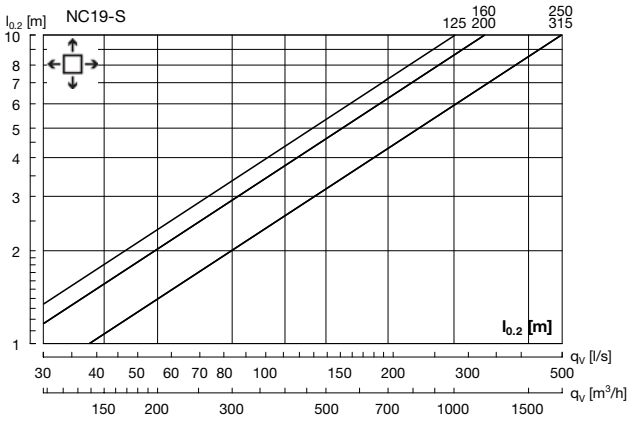
Quick selection, supply air

NC19 + MBB		$\Delta p_t \geq 50$ Pa		$\Delta p_t \geq 50$ Pa	
duct	NC19	30 dB(A)		35 dB(A)	
$Ød_1$	$Ød_2$	l/s	m³/h	l/s	m³/h
100	125	25	90	33	119
100	160	39	140	47	169
125	125	35	126	41	148
125	160	48	173	59	212
125	200	54	194	64	230
160	160	52	187	63	227
160	200	59	212	72	259
160	250	76	274	96	346
200	200	66	238	80	288
200	250	92	331	112	403
200	315	97	349	120	432
250	250	100	360	119	428
250	315	109	392	131	472
315	315	121	436	143	515

Throw $l_{0.2}$

Throw $l_{0.2}$ [m] is specified at a terminal velocity of 0.2 m/s.





Sound attenuation

Sound attenuation of the diffusers ΔL from duct to room, including end reflection, see table below

NC19 + MBB		Centre frequency Hz							
duct	NC19								
$Ød_1$	$Ød_2$	63	125	250	500	1K	2K	4K	8K
100	125	20	16	6	15	20	20	19	23
100	160	16	16	4	13	18	19	17	21
125	125	17	15	10	19	20	20	19	22
125	160	15	14	7	18	18	18	18	21
125	200	13	12	5	15	15	16	17	19
160	160	16	15	11	22	20	20	20	20
160	200	16	15	8	21	19	19	19	21
160	250	16	14	5	17	14	16	18	19
200	200	15	10	8	16	20	18	20	18
200	250	13	9	5	13	17	15	19	17
200	315	13	9	4	11	16	15	17	17
250	250	14	8	8	16	18	18	18	19
250	315	14	8	6	14	17	16	17	18
315	315	8	10	9	14	17	17	18	24

Balancing

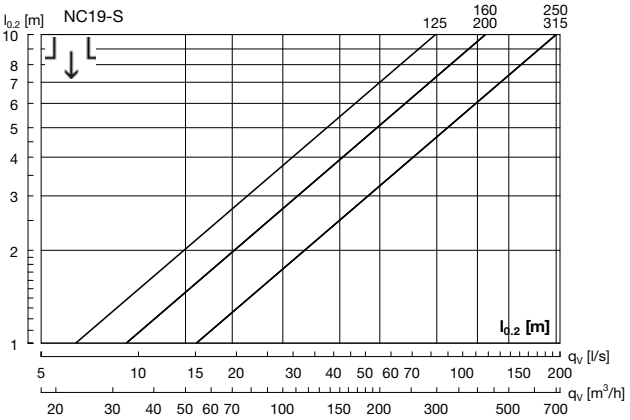
Balancing data is contained in a separate brochure.

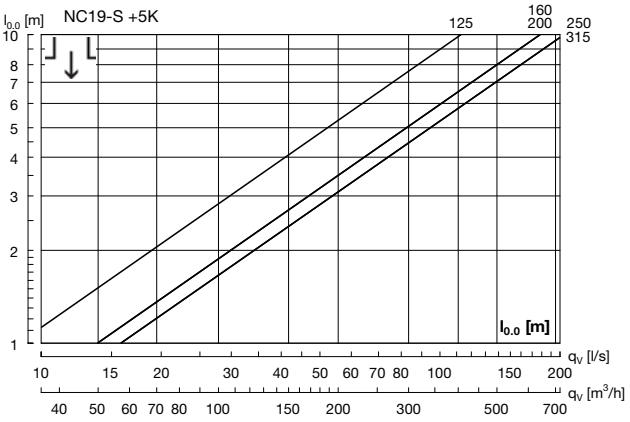
Nozzle diffuser NC19

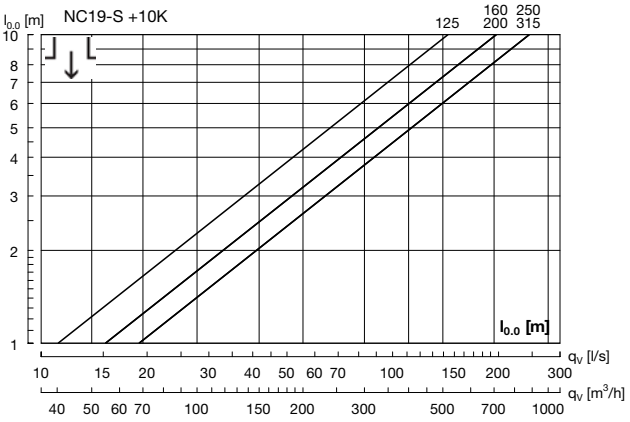
Technical data

Throws/Turning points

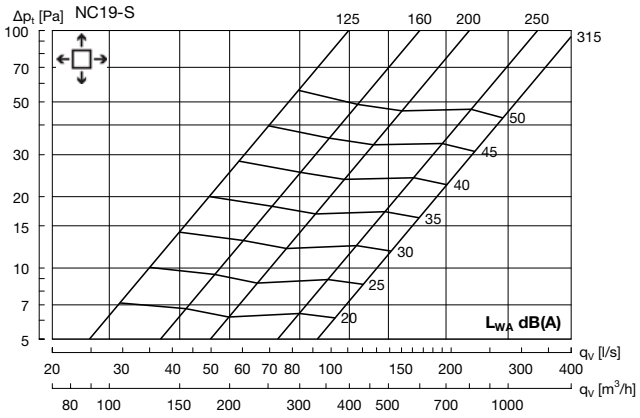
Throw $l_{0.2}$ [m] is specified at a terminal velocity of 0.2 m/s. Turning point $l_{0.0}$ [m] is specified for +5 K and +10 K respectively.







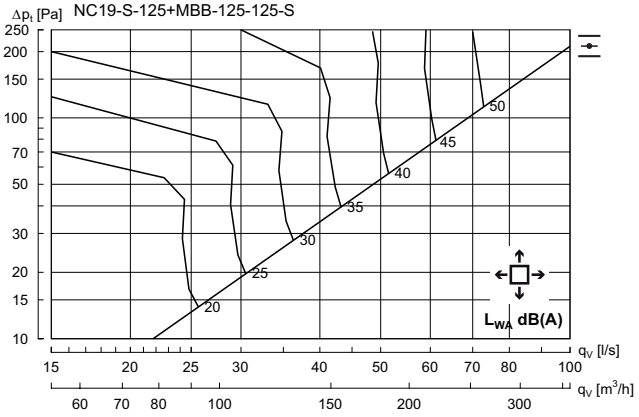
NC19 without box – Supply air



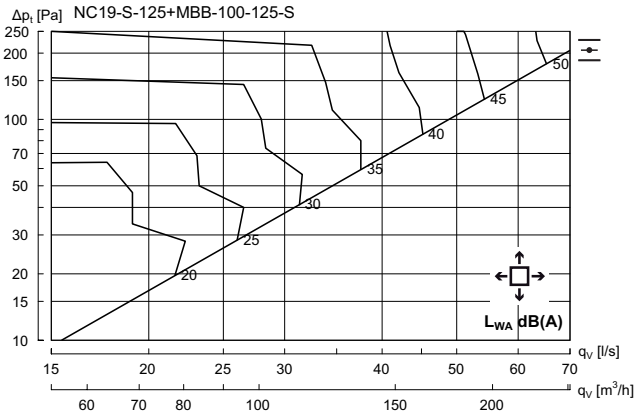
Nozzle diffuser NC19

Technical data

NC19 - 125 + MBB - Supply air

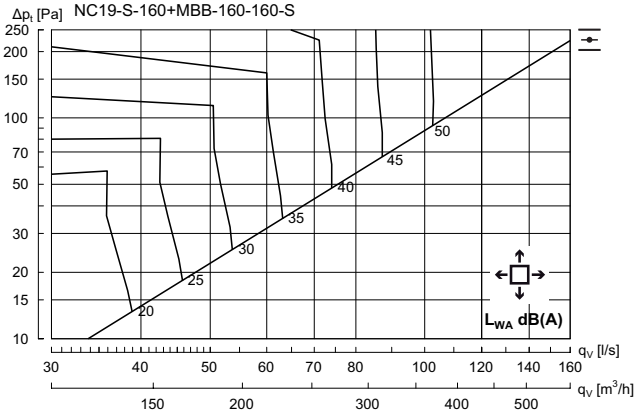


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	11	1	-4	0	-5	-15	-23	-35

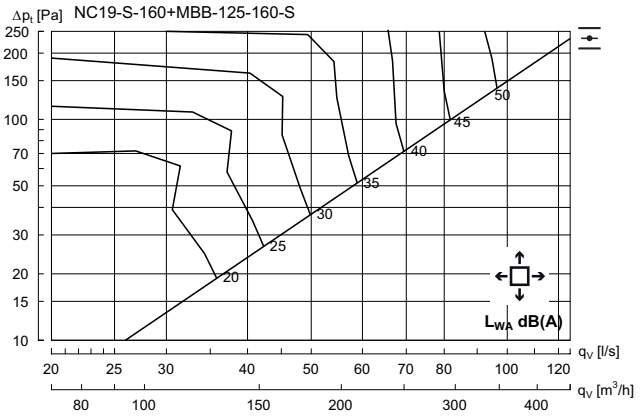


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	10	3	2	0	-7	-15	-22	-27

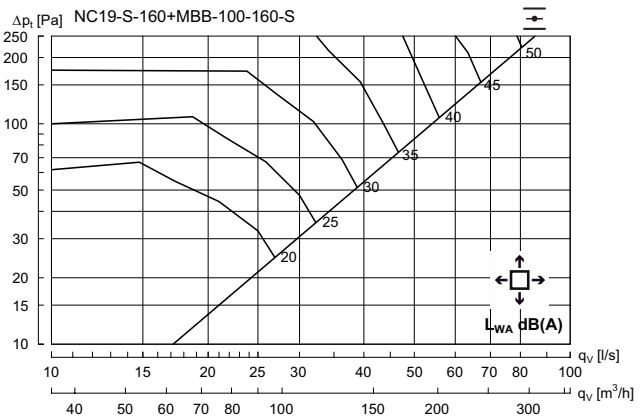
NC19 - 160 + MBB - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	6	5	-3	-1	-4	-14	-21	-32



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	8	5	-1	-1	-6	-13	-17	-25

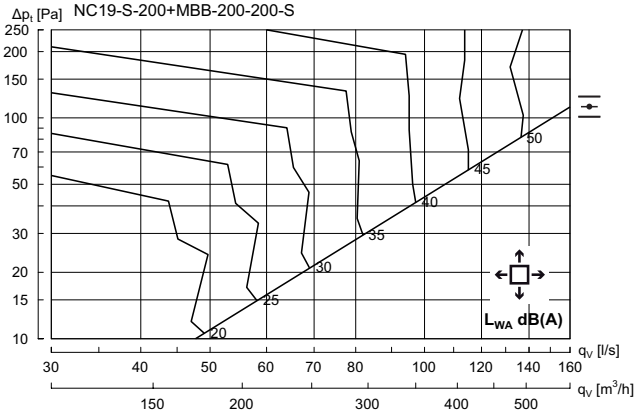


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	10	4	1	0	-8	-12	-16	-21

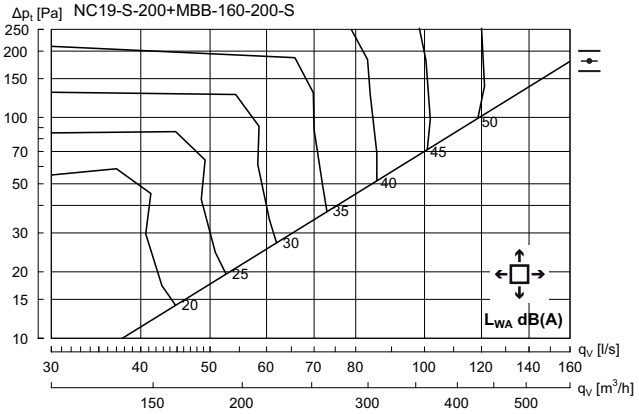
Nozzle diffuser NC19

Technical data

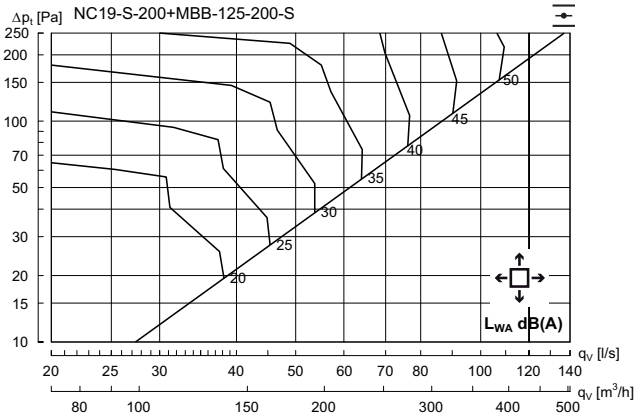
NC19 - 200 + MBB - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	11	2	-5	0	-4	-16	-23	-33

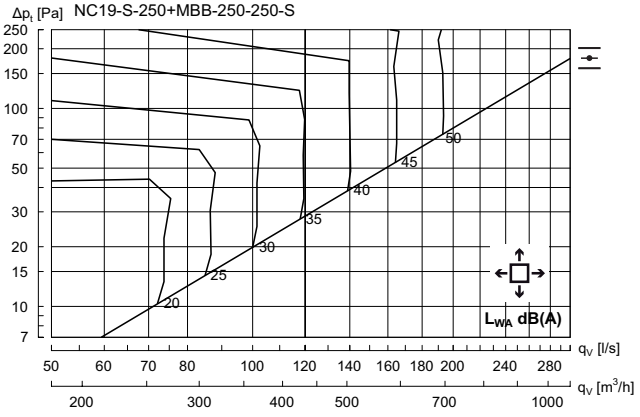


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	9	4	-2	-1	-5	-14	-20	-28

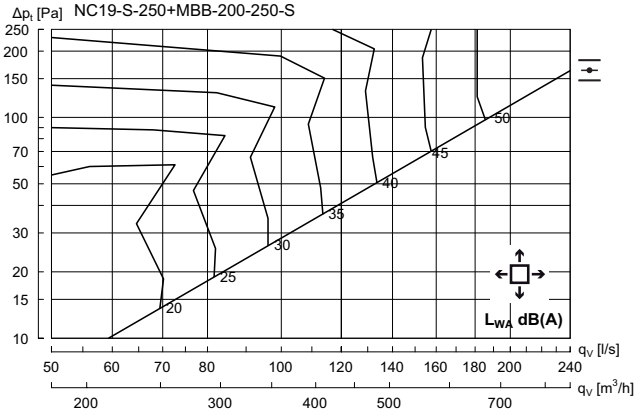


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	6	5	0	0	-6	-12	-17	-25

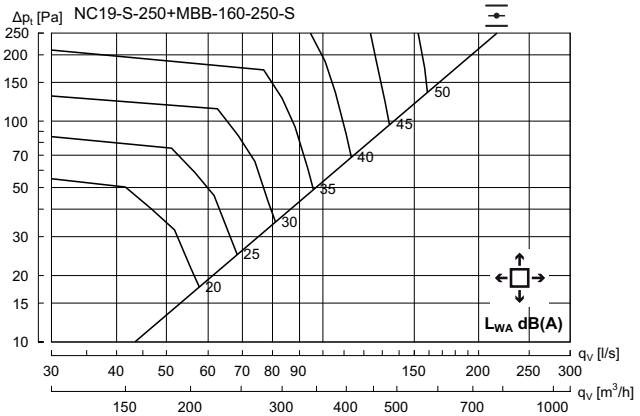
NC19 - 250 + MBB - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	10	3	-4	-1	-4	-15	-23	-34



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	6	7	-2	-1	-4	-14	-20	-29



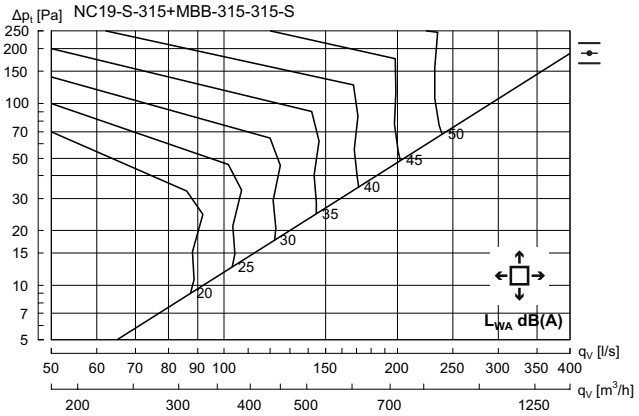
Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	11	6	1	-2	-5	-12	-18	-26

Nozzle diffuser

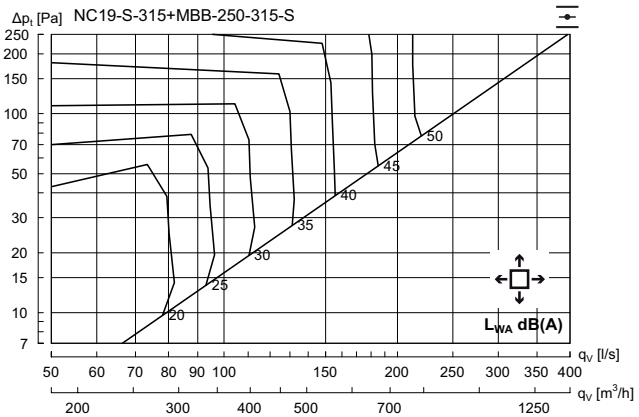
NC19

Technical data

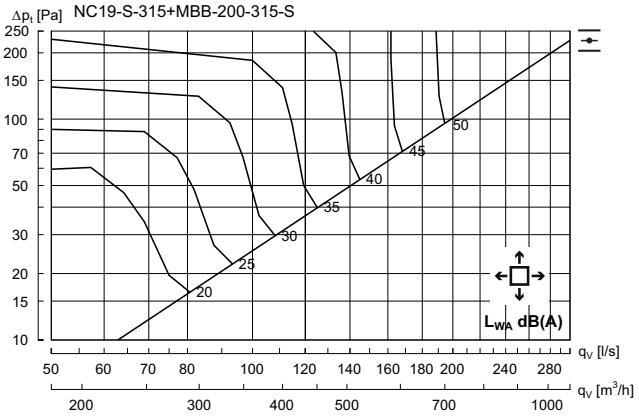
NC19 - 315 + MBB - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	9	1	-4	-1	-3	-17	-26	-40



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	9	4	-2	-1	-4	-15	-23	-30



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	8	7	0	-2	-5	-14	-20	-30

Swirl diffuser

RCG

Description

RCG is a circular swirl diffuser with fixed bars. RCG is suitable for the horizontal supply of very cold air. The swirl pattern ensures optimum distribution and high induction, as well as a large dynamic range. Installing a RCG diffuser in a plenum box type MBB can help to achieve a stable flow of air to the diffuser as well as realise the potential for individual adjustment. RCG can also be installed directly in the duct using the traverse bracket GRZ1, which is available as an accessory.

- Large dynamic range
- High induction
- Suitable for cooling at very low temperatures

Maintenance

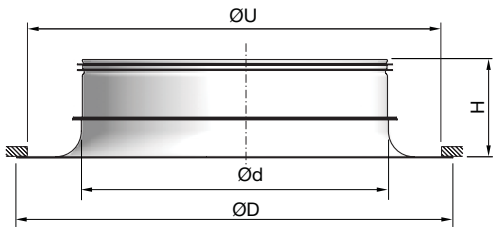
Diffusers are removed to enable cleaning of the plenum box or duct system. The visible parts of the diffuser can be wiped with a damp cloth.

Order code

Product	**RCG**	**aaa**
Type		
RCG		
Connection dim.		
Ød 125-400		

Example: RCG-315

Dimensions



RCG Ød mm	ØD mm	H mm	ØU mm	Free area A m^2	Weight kg
125	200	70	150	0,0031	0,40
160	250	70	200	0,0072	0,50
200	300	70	250	0,0106	0,60
250	350	90	300	0,0189	0,80
315	450	100	400	0,027	1,00
400	570	150	500	0.039	1,50

* ØU = Cutting dimension

Materials and finish

Material: Steel
Standard finish: Powder-coated
Standard colour: RAL 9010 Gloss 30

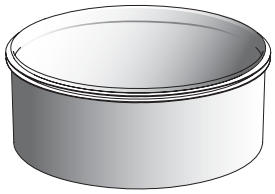
The diffuser is available in other colours. Please contact Lindab's sales department for further information.

Swirl diffuser RCG

Accessories

Traverse bracket GRZ1

Extension piece MBZ

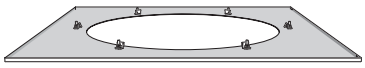


Order code - accessoreies

Product	aaa	bbb
Type		
Size		

Example: GRZ1-315

Module plate LM



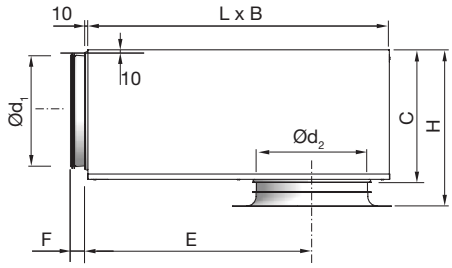
Order code - module plate

Product	LM	a	RCG	ccc
Type				
Ceiling system				
Diffuser				
Size				

Example: LM-1-RCG-315
Ceiling system - see introductory summary

Dimensions

Plenum box MBB



RCG + MBB

RCG + MBB duct Ød1 mm	RCG Ød2 mm	B mm	C mm	E mm	F mm	H* mm	L mm
100	125	260	159	216	50	185 - 215	310
100	160	260	159	216	50	185 - 215	310
125	125	310	184	262	50	210 - 240	376
125	160	310	184	262	50	210 - 240	376
125	200	310	184	262	50	210 - 240	376
160	160	380	220	323	50	244 - 274	459
160	200	380	220	323	50	244 - 274	459
160	250	380	220	323	50	264 - 304	459
200	200	460	259	396	70	305 - 345	565
200	250	460	259	396	70	325 - 365	565
200	315	460	259	396	70	325 - 365	565
250	250	540	309	486	70	360 - 400	698
250	315	540	309	486	70	360 - 400	698
250	400	540	309	486	70	410 - 450	698
315	315	540	373	646	70	425 - 465	858
315	400	540	373	646	70	475 - 515	858

* Using accessory MBZ the H dimension will increase:
$Ød_2$ = 125 - 200 mm => H +40 mm
$Ød_2$ = 250 - 315 mm => H +60 mm
$Ød_2$ = 400 mm => H +80 mm

Order code

Product	MBB	aaa	bbb	S
Type				
MBB				
Duct connection $Ød_1$				
Ø100-315				
Diffuser dimension $Ød_2$				
Ø125-400				
Functional use				
S = Supply air				

Example: RCG-315-MBB-315-315-S

Swirl diffuser RCG

Technical data

Capacity

Air flow q_v [l/s] and [m^3/h], total pressure Δp_t[Pa], throw $l_{0.2}$ [m] and sound power level L_{WA} [dB(A)] can be seen in the diagrams.

Frequency-related sound effect level

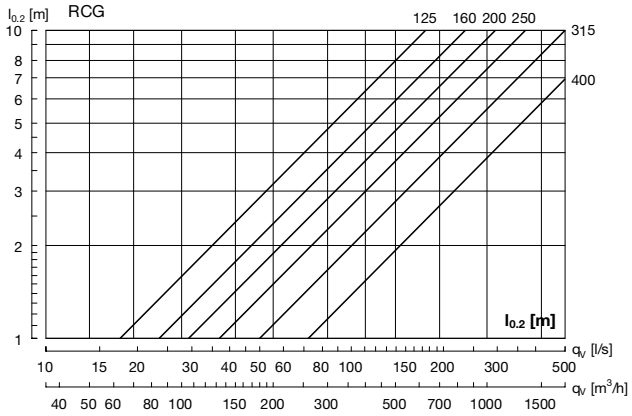
The sound effect level in the frequency band is defined as $L_{WA}+K_{ok}$. K_{ok} values are specified in charts beneath the diagrams on the following pages.

Quick selection, supply air

RCG + MBB		$\Delta p_t \geq 50$ Pa		$\Delta p_t \geq 50$ Pa	
duct	RCG	30 dB(A)		35 dB(A)	
$Ød_1$	$Ød_2$	l/s	m^3/h	l/s	m^3/h
100	125	17	61	20	72
100	160	28	101	33	119
125	125	20	72	24	86
125	160	32	115	39	140
125	200	42	151	52	187
160	160	34	122	41	148
160	200	48	173	59	212
160	250	60	216	76	274
200	200	50	180	63	227
200	250	67	241	84	302
200	315	90	324	111	400
250	250	76	274	93	335
250	315	99	356	122	439
250	400	109	392	143	515
315	315	119	428	142	511
315	400	142	511	177	637

Throw $l_{0.2}$

Throw $l_{0.2}$ [m] is specified at a terminal velocity of 0.2 m/s.



Sound attenuation

Sound attenuation of the diffusers ΔL from duct to room, including end reflection - see table below.

RCG + MBB		Centre frequency Hz							
duct	RCG								
$Ød_1$	$Ød_2$	63	125	250	500	1K	2K	4K	8K
100	125	20	16	7	18	19	18	17	21
100	160	19	16	5	17	17	16	16	19
125	125	17	15	9	21	17	19	18	20
125	160	13	14	8	20	14	16	16	20
125	200	13	12	5	17	13	14	15	18
160	160	18	15	9	22	18	17	19	20
160	200	17	15	8	21	17	16	18	19
160	250	16	15	4	17	14	14	16	18
200	200	14	9	8	18	18	15	18	17
200	250	13	10	5	15	17	14	17	16
200	315	11	8	3	13	15	13	16	16
250	250	15	8	8	15	17	16	17	18
250	315	15	7	6	13	15	14	16	17
250	400	14	5	4	12	13	13	14	16
315	315	7	10	9	13	16	15	17	21
315	400	7	8	9	12	15	15	16	19

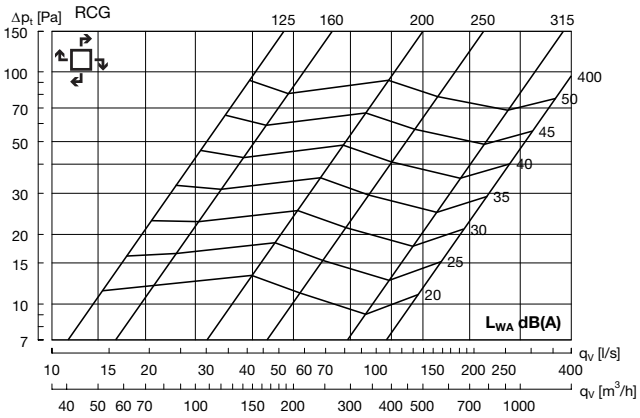
Balancing

Balancing data is contained in a separate brochure.

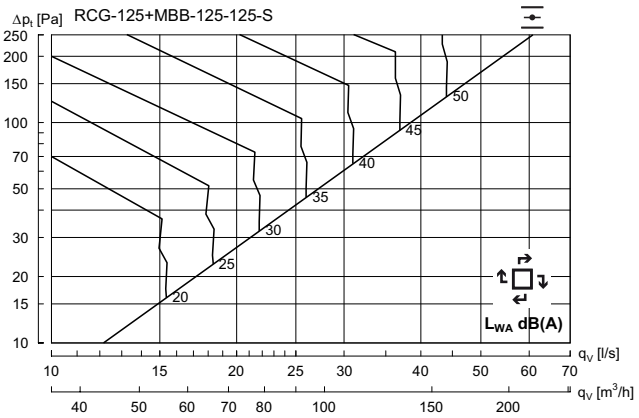
Swirl diffuser RCG

Technical data

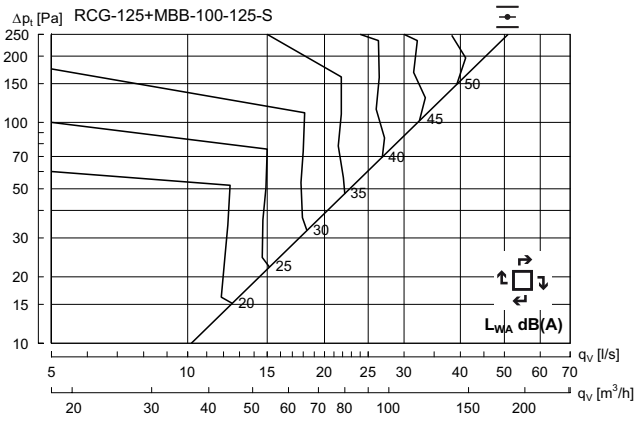
RCG without box – supply air



RCG 125 + MBB - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	14	5	2	-3	-7	-10	-20	-31



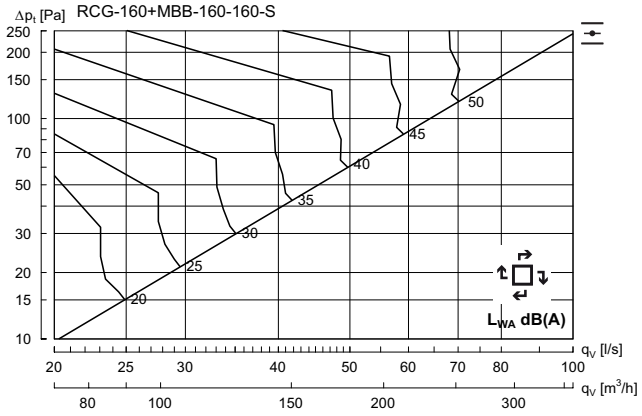
Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	9	4	4	-3	-7	-11	-22	-33

Swirl diffuser

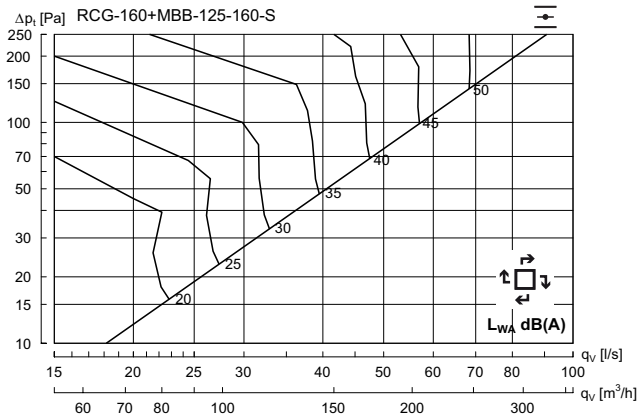
RCG

Technical data

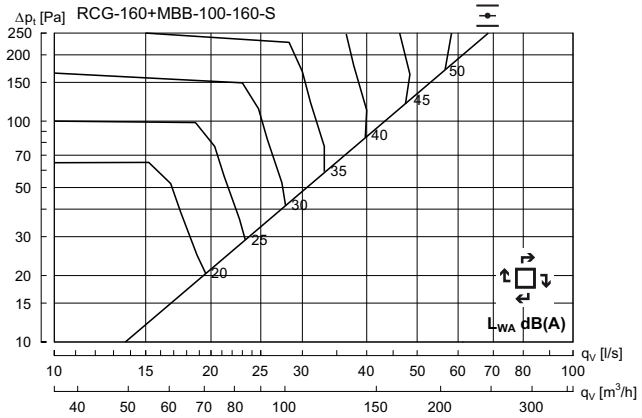
RCG 160 + MBB - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	5	7	3	-2	-7	-11	-22	-34

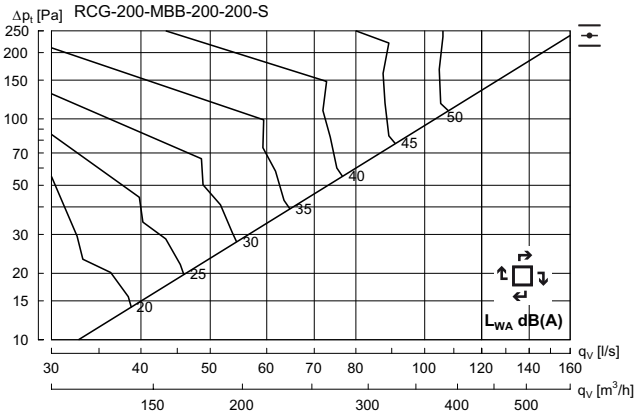


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	8	5	4	-3	-7	-12	-22	-34

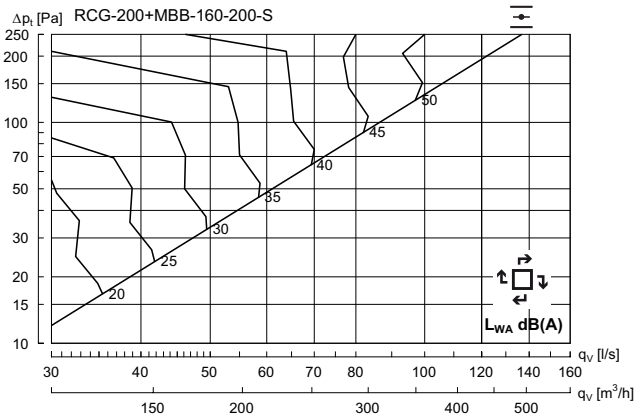


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	12	4	4	-3	-7	-12	-20	-27

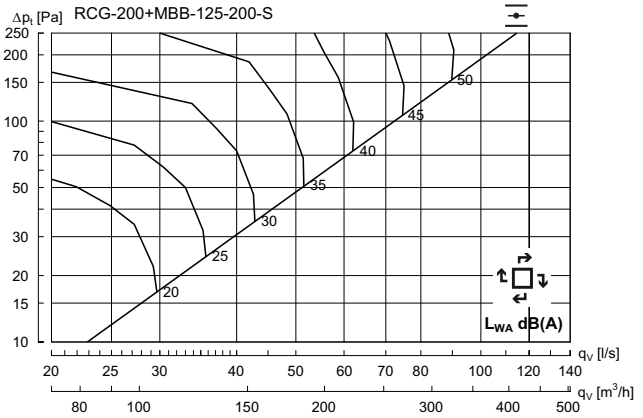
RCG 200 + MBB - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	14	7	2	-2	-6	-13	-24	-35



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	11	7	3	-3	-7	-12	-22	-34

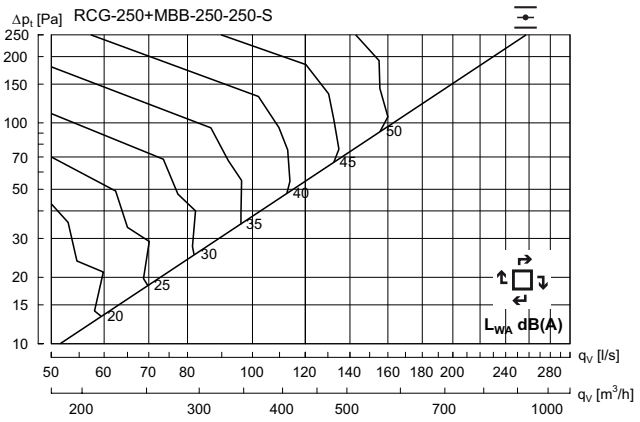


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	10	5	5	-4	-8	-12	-18	-27

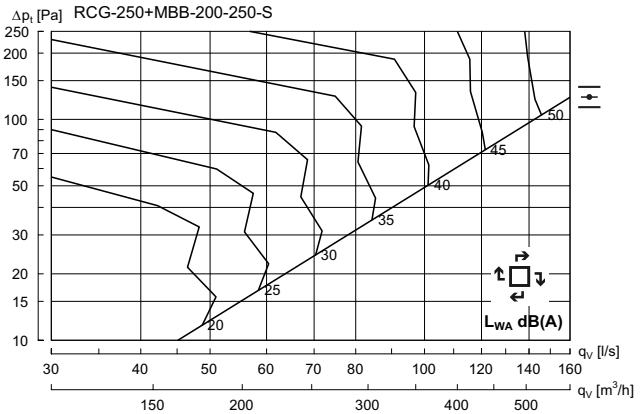
Swirl diffuser RCG

Technical data

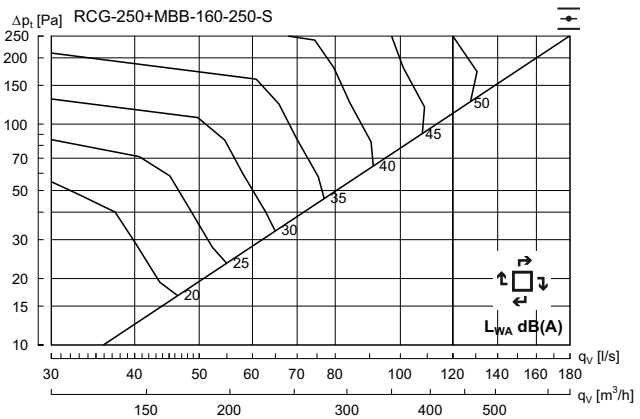
RCG 250 + MBB - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	10	6	2	-3	-5	-12	-21	-29

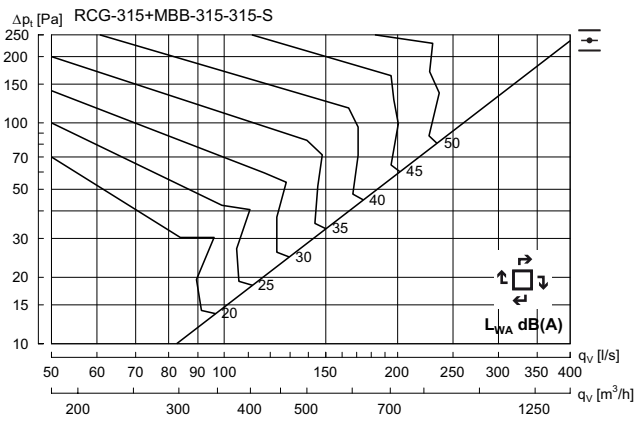


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	8	7	3	-2	-6	-12	-22	-34

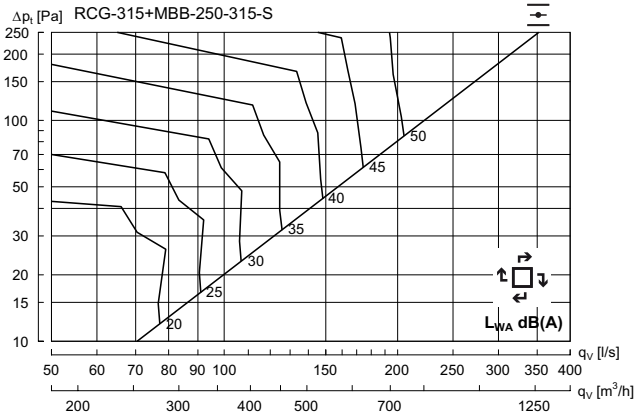


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	12	6	3	-3	-7	-12	-20	-29

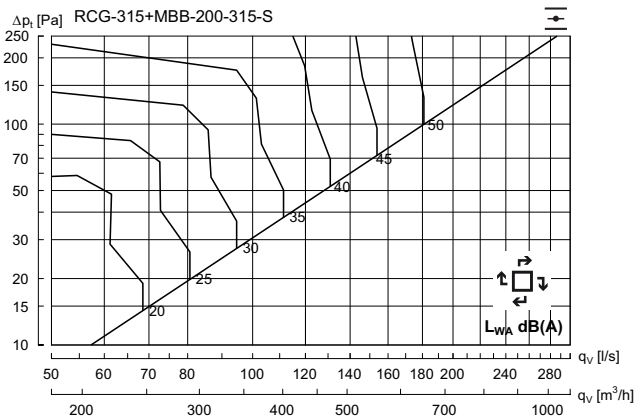
RCG 315 + MBB - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	12	4	2	-3	-4	-14	-22	-32



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	10	7	3	-3	-6	-14	-22	-32



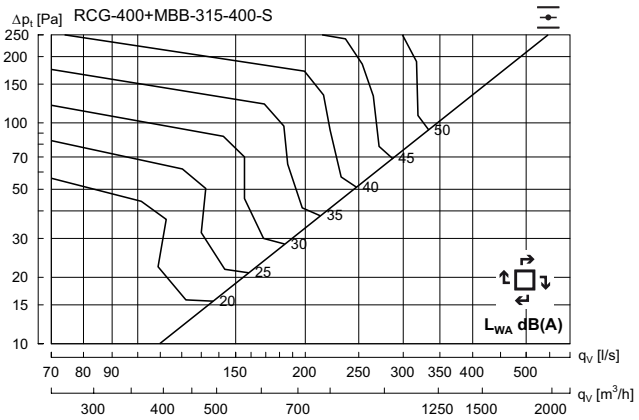
Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	9	7	3	-2	-6	-13	-22	-31

Swirl diffuser

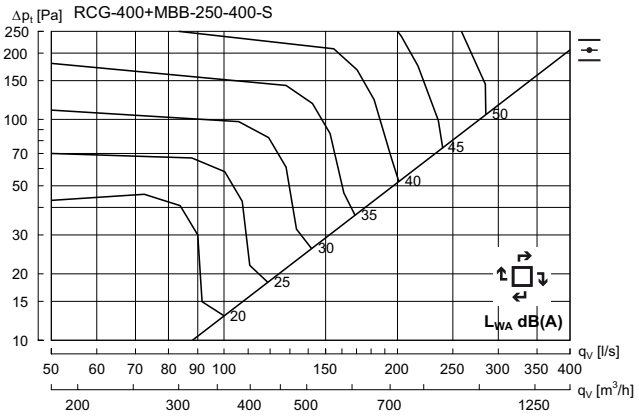
RCG

Technical data

RCG 400 + MBB - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	10	5	2	-4	-5	-11	-20	-28



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	9	6	2	-3	-5	-11	-19	-28

Plain diffuser LCC

Description

LCC is a flush mounted circular diffuser with a circular unperforated face plate for installation in ceiling systems and permanent ceilings. LCC can be used for both supply and exhaust air. LCC is suitable for horizontal supply of cooled air and has a large dynamic range. Installing an LCC diffuser in a plenum box type MBB can help to achieve a stable airflow to the diffuser as well as realise the potential for individual adjustment.

- Simple and aesthetic appearance
- Large dynamic range
- Can be used for both supply and exhaust air

Maintenance

The faceplate can be removed to enable cleaning of internal parts or to gain access to the plenum box. the visible parts of the diffuser can be wiped with a damp cloth.

Technical data

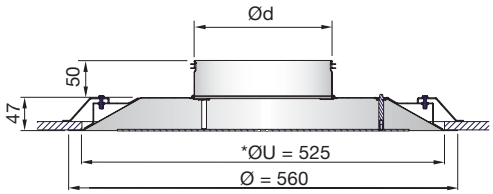
For full documentation including Quick selection, sound diagrams, and K_{ok}-values, see LCP in the Integra chapter.

Order code

Product	**LCC**	**aaa**
Type		
LCC		
Connection dim.		
Ød 125-315		

Example: LCC-160

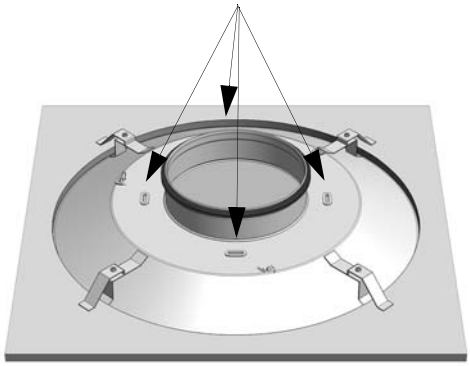
Dimensions



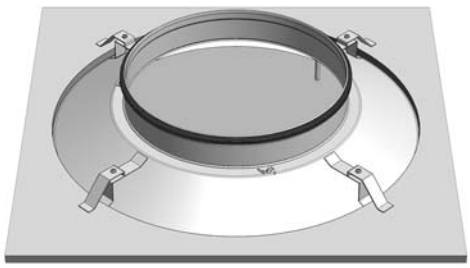
*ØU = Ceiling grid opening = 525 mm, all sizes.

LCC Ød mm	Weight kg
125	1.25
160	1.50
200	2.30
250	3.40
315	4.60

Ød = 125-250 => LCC has mounting holes for MBB



Ød = 315 => LCC has no mounting holes for MBB !



Brackets included for LCC, for details, see the Integra installation instruction.

Materials and finish

Upper part:	Galvanised steel
Face plate:	Aluminium
Face plate finish:	Powder coated
Standard colour:	RAL 9010, gloss 30

Other colours are available. Please contact Lindab's sales department for futher information.

Plain diffuser LKP/LCP

LKP

LCP

Description

LCP is a flush-mounted square diffuser with a circular unperforated face plate for installation in ceiling systems. LCP can be used for both supply and exhaust air. LCP is suitable for the horizontal supply of cooled air and has a large dynamic range. Installing an LCP diffuser in a plenum box type MBB can help to achieve a stable airflow to the diffuser as well as realise the potential for individual adjustment. LKP has a square face plate and the same properties as LCP.

- Simple and stylish appearance
- Large dynamic range
- Can be used for both supply and exhaust air
- Can be adapted to most ceiling systems

Maintenance

The face plate can be removed to enable cleaning of internal parts or to gain access to the duct or box. The visible parts of the diffuser can be wiped with a damp cloth.

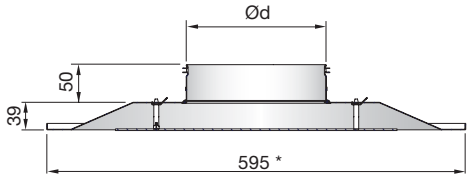
Order code

Product	LCP/LKP	aaa	b
Type			
LCP/LKP			
Connection dim.			
Ød 125-315			
Ceiling system			
1 - 14			

Example: LCP-160-1

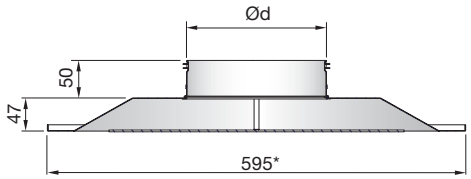
Dimensions

LKP



* ceiling system 1, other ceiling systems see Integra chapter page 122-123.

LCP



Ød = 315 => LCP has no mounting holes for MBB !

LKP/LCP Ød mm	Weight kg
125	3.2
160	3.2
200	3.3
250	3.4
315	3.5

Materials and finish

Grille box:	Galvanised steel
Face plate LKP:	Galvanised steel
Face plate LCP:	Aluminium
Face plate finish:	Powder-coated
Standard colour:	RAL 9010 Gloss 30

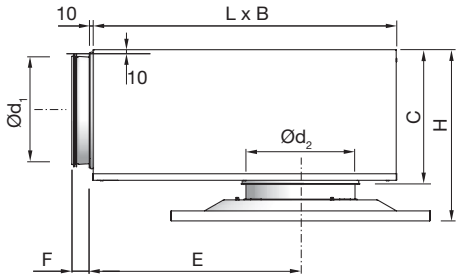
The diffuser is available in other colours. Please contact Lindab's sales department for further information.

Plain diffuser LCC/LKP/LCP

Accessories

Plenum box MBB

LKP + MBB



LKP + MBB							
duct	LKP	B	C	E	F	H*	L
$Ød_1$ mm	$Ød_2$ mm	mm	mm	mm	mm	mm	mm
100	125	260	159	216	50	198 - 238	310
100	160	260	159	216	50	198 - 238	310
125	125	310	184	262	50	223 - 263	376
125	160	310	184	262	50	223 - 263	376
125	200	310	184	262	50	223 - 263	376
160	160	380	220	323	50	257 - 297	459
160	200	380	220	323	50	257 - 297	459
160	250	380	220	323	50	257 - 297	459
200	200	460	259	396	70	298 - 338	565
200	250	460	259	396	70	298 - 338	565
200	315	460	259	396	70	298 - 338	565
250	250	540	309	486	70	348 - 388	698
250	315	540	309	486	70	348 - 388	698
315	315	540	373	648	70	413 - 453	858

* Using accessory MBZ the H dimension will increase:
$Ød_2$ = 125 - 200 mm => H +40 mm
$Ød_2$ = 250 - 315 mm => H +60 mm

Order code

Product MBB - aaa - bbb - c

Type
MBB

Duct connection $Ød_1$
Ø100-315

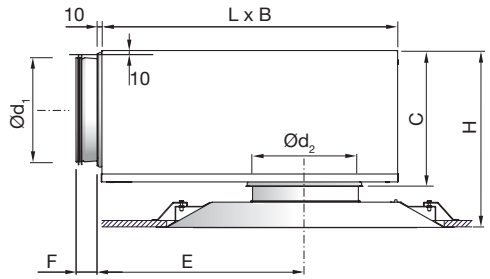
Diffuser dimension $Ød_2$
Ø125-315

Functional use
S = Supply air
E = Exhaust

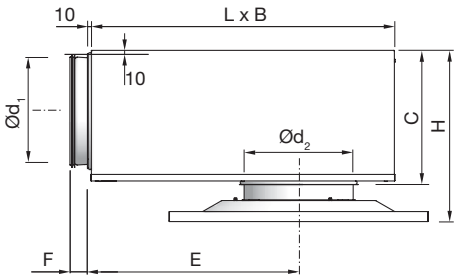
Example: LCP-160-1+MBB-160-160-S

Accessories

LCC + MBB



LCP + MBB



LCC / LCP + MBB							
duct	LCP	B	C	E	F	H*	L
$Ød_1$ mm	$Ød_2$ mm	mm	mm	mm	mm	mm	mm
100	125	260	159	216	50	206 - 246	310
100	160	260	159	216	50	206 - 246	310
125	125	310	184	262	50	231 - 271	376
125	160	310	184	262	50	231 - 271	376
125	200	310	184	262	50	231 - 271	376
160	160	380	220	323	50	265 - 305	459
160	200	380	220	323	50	265 - 305	459
160	250	380	220	323	50	265 - 305	459
200	200	460	259	396	70	306 - 346	565
200	250	460	259	396	70	306 - 346	565
200	315	460	259	396	70	306 - 346	565
250	250	540	309	486	70	356 - 396	698
250	315	540	309	486	70	356 - 396	698
315	315	540	373	646	70	421 - 461	858

* Using accessory MBZ the H dimension will increase:
$Ød_2$ = 125 - 200 mm => H +40 mm
$Ød_2$ = 250 - 315 mm => H +60 mm

Plain diffuser LCC/LKP/LCP

Technical data

Capacity

Air flow q_v [l/s] and [m^3/h], total pressure Δp_t [Pa], throw $l_{0.2}$ [m] and sound power level L_{WA} [dB(A)] can be seen in the diagrams.

Frequency-related sound effect level

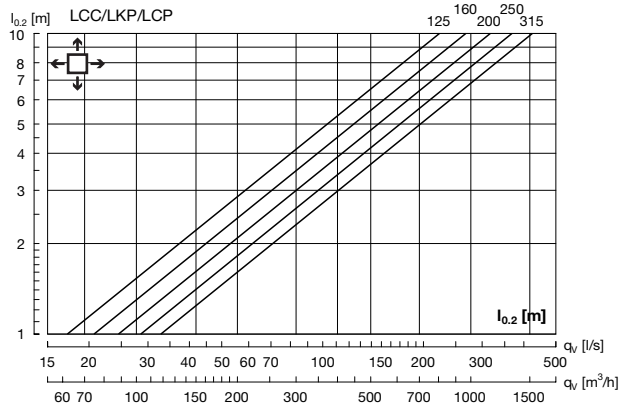
The sound effect level in the frequency band is defined as $L_{WA}+K_{ok}$. K_{ok} values are specified in charts beneath the diagrams on the following pages.

Quick selection, supply air

LCC/LKP/LCP + MBB		$\Delta p_t \geq 50$ Pa		$\Delta p_t \geq 50$ Pa	
duct	LKP/LCP	30 dB(A)		35 dB(A)	
$Ød_1$	$Ød_2$	l/s	m^3/h	l/s	m^3/h
100	125	37	133	44	158
100	160	39	140	48	173
125	125	48	173	56	202
125	160	56	202	66	238
125	200	61	220	73	263
160	160	67	241	85	306
160	200	79	284	99	356
160	250	95	342	113	407
200	200	92	331	117	421
200	250	105	378	122	439
200	315	118	425	145	522
250	250	112	403	132	475
250	315	131	472	168	605
315	315	144	518	169	608

Throw $l_{0.2}$

Throw $l_{0.2}$ [m] can be seen in the diagram for isothermal air, at a terminal velocity of 0.2 m/s.



Sound attenuation

Sound attenuation of the diffusers ΔL from duct to room, including end reflection, see table below.

LCC/LCP/LKP + MBB								
duct	LCC/ LCP/LKP	Centre frequency Hz						
$Ød_1$	$Ød_2$	63	125	250	500	1K	2K	4K	8K
100	125	17	15	10	17	15	18	19	21
100	160	17	16	6	10	18	18	18	21
125	125	17	15	10	17	15	18	19	21
125	160	15	14	10	17	16	17	18	21
125	200	13	12	7	13	13	16	17	18
160	160	17	15	12	21	19	19	21	21
160	200	17	16	10	20	17	17	19	20
160	250	16	14	7	17	15	16	19	20
200	200	13	11	10	17	18	15	19	18
200	250	14	11	8	15	19	15	18	17
200	315	14	9	7	13	18	14	17	17
250	250	15	10	9	17	18	18	19	19
250	315	15	8	9	16	18	16	18	18
315	315	8	10	10	17	18	17	18	24

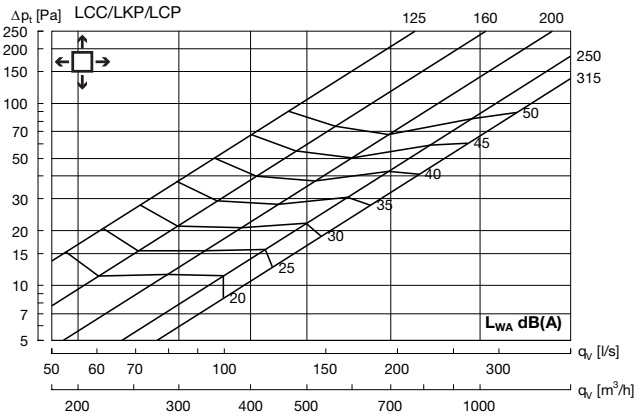
Balancing

Balancing data is contained in a separate brochure.

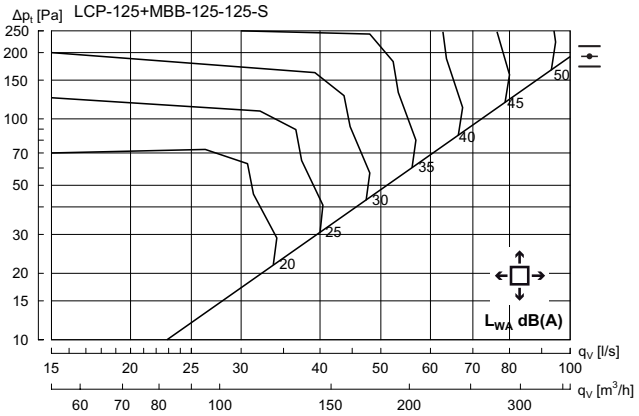
Plain diffuser LCC/LKP/LCP

Technical data

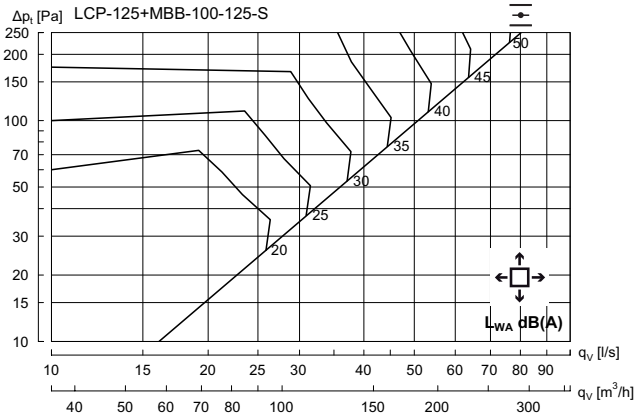
LCC/LKP/LCP without box – supply air



LCC/LKP/LCP 125 + MBB - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	13	7	1	-2	-6	-14	-20	-25



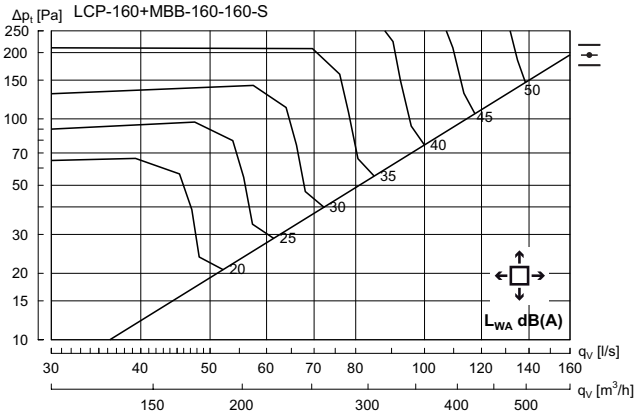
Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	10	4	2	-2	-6	-10	-17	-23

Plain diffuser

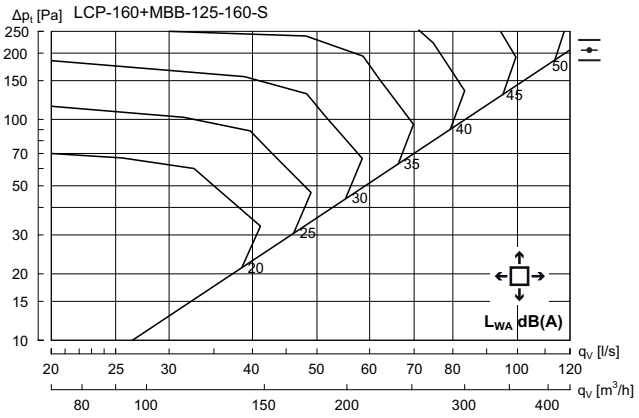
LCC/LKP/LCP

Technical data

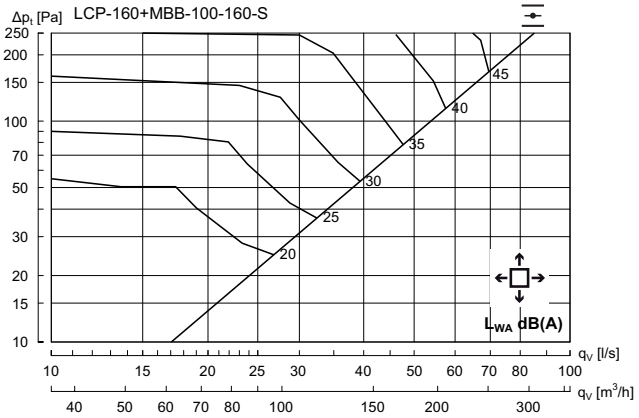
LCC/LKP/LCP 160 + MBB - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	13	8	0	-3	-6	-10	-19	-25

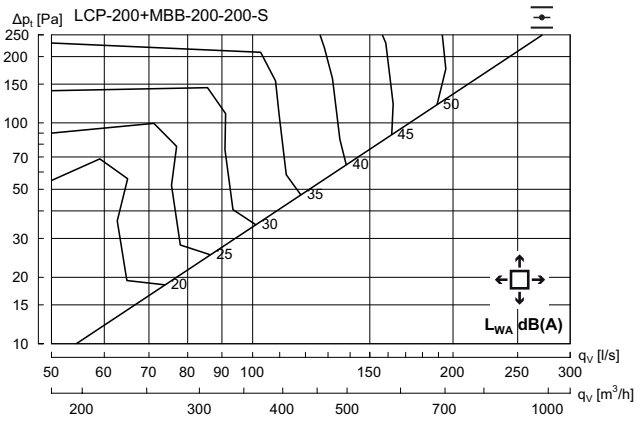


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	9	8	1	-3	-6	-11	-16	-22

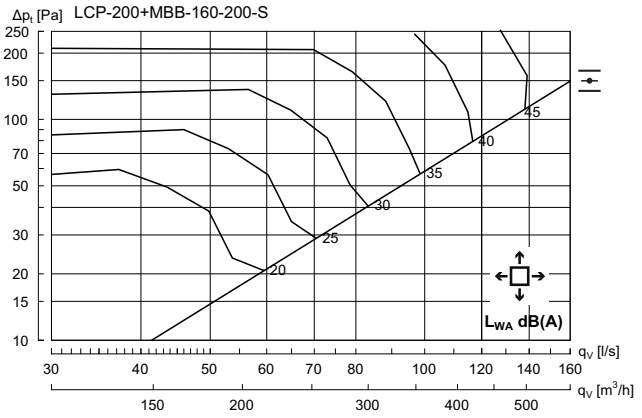


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	9	5	0	-1	-7	-10	-16	-21

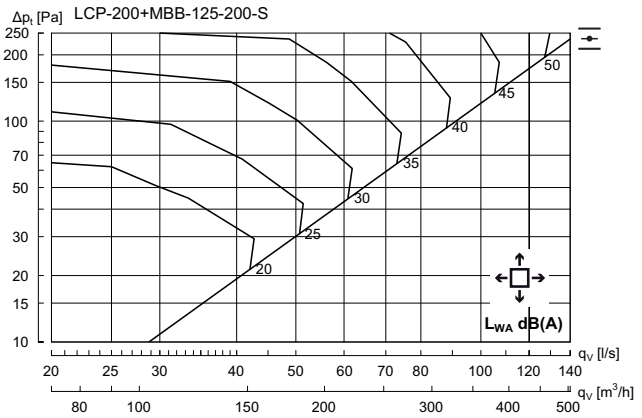
LCC/LKP/LCP 200 + MBB - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	12	8	0	-3	-5	-14	-21	-24



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	12	7	-1	-3	-5	-10	-15	-21



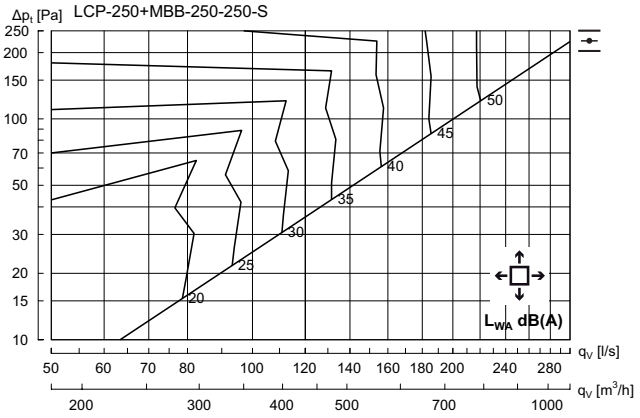
Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	6	6	0	-3	-5	-9	-16	-21

Plain diffuser

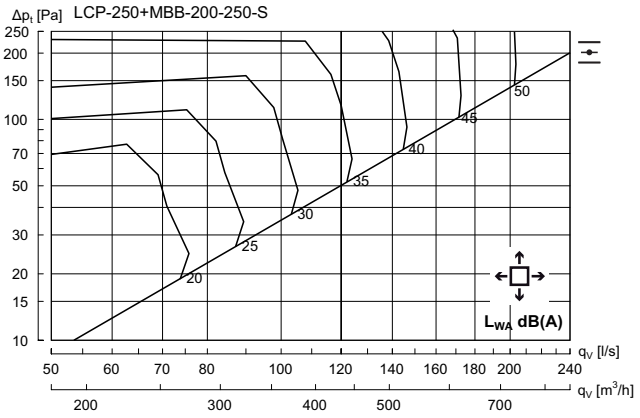
LCC/LKP/LCP

Technical data

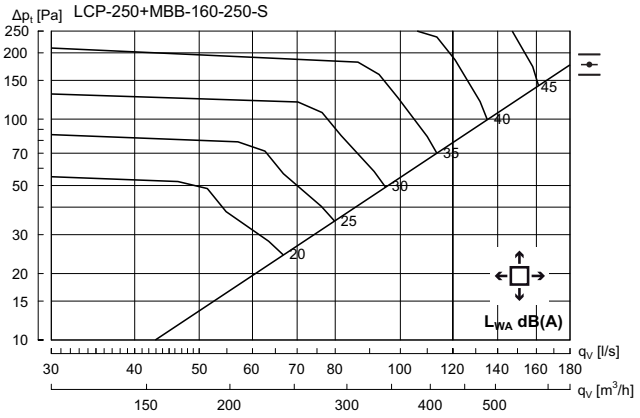
LCC/LKP/LCP 250 + MBB - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	15	6	-1	-1	-5	-15	-23	-29

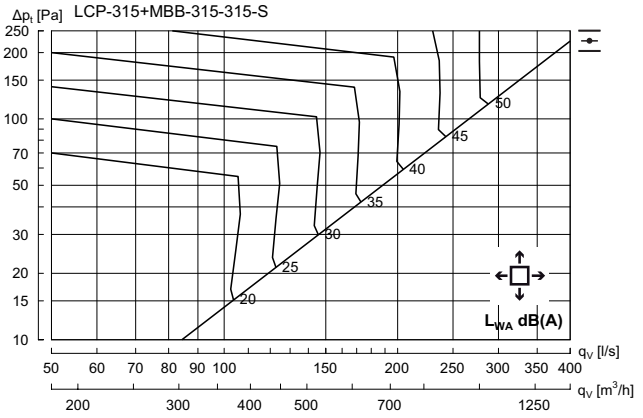


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	13	8	-1	-2	-5	-13	-20	-26

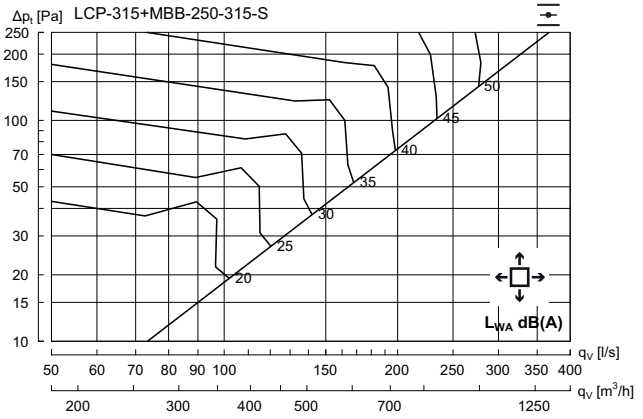


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	13	7	0	-4	-5	-11	-16	-22

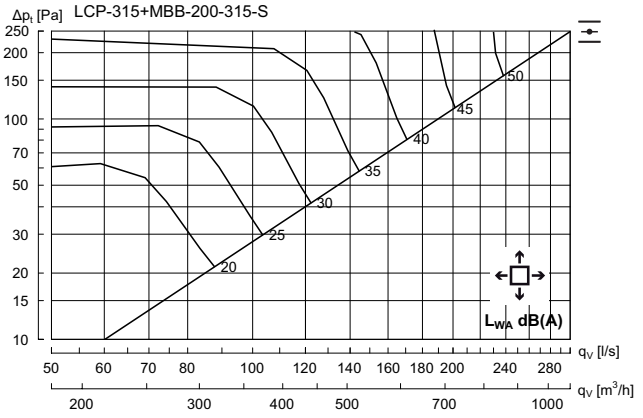
LCC/LKP/LCP 315 + MBB - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	12	4	0	-2	-4	-14	-19	-27



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	13	7	0	-2	-6	-10	-17	-23

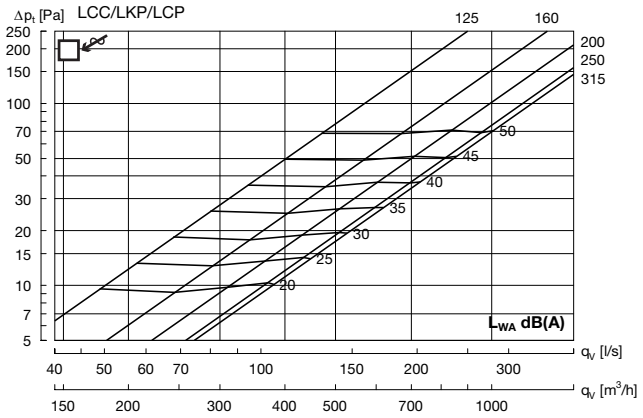


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	12	10	0	-3	-6	-12	-19	-24

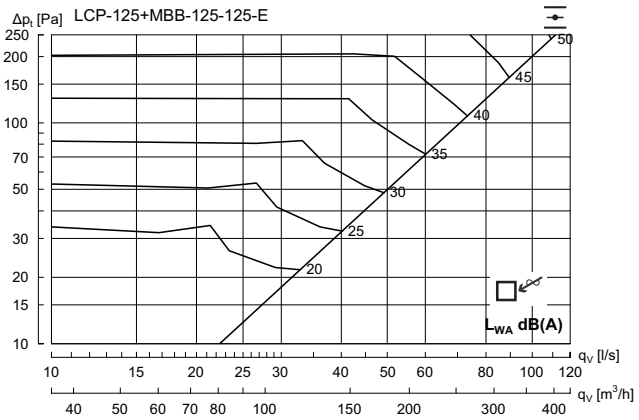
Plain diffuser LCC/LKP/LCP

Technical data

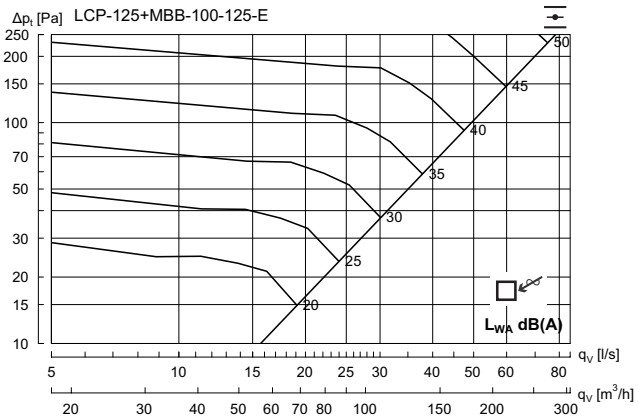
LCC/LKP/LCP without box – Exhaust



LCC/LKP/LCP 125 + MBB - Exhaust air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	12	4	-1	-1	-6	-12	-16	-22



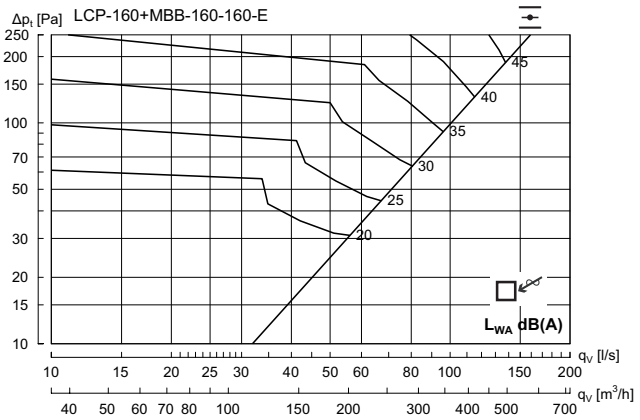
Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	13	-1	3	-1	-9	-11	-17	-23

Plain diffuser

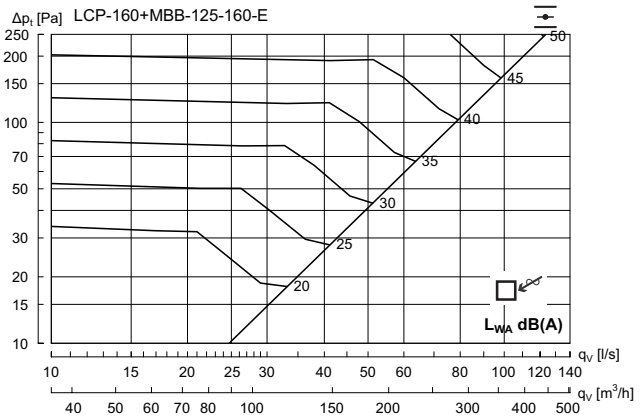
LCC/LKP/LCP

Technical data

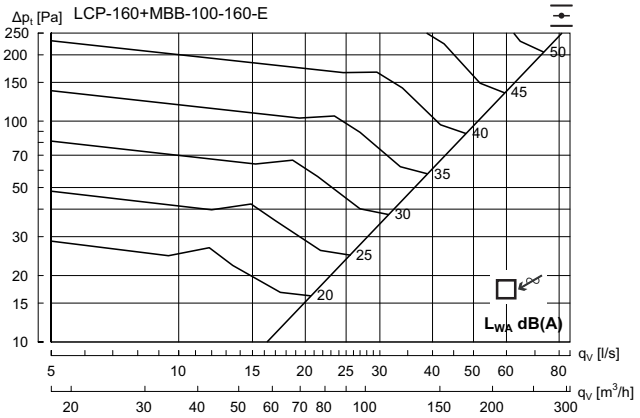
LCC/LKP/LCP 160 + MBB - Exhaust air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	16	4	-1	-2	-5	-10	-16	-21

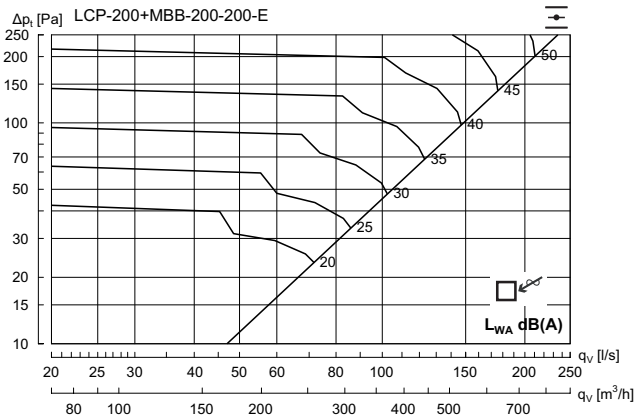


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	14	5	0	-1	-6	-11	-15	-21

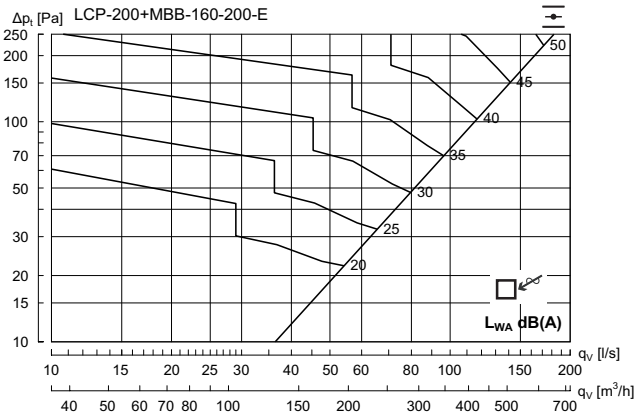


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	11	3	2	0	-8	-13	-17	-23

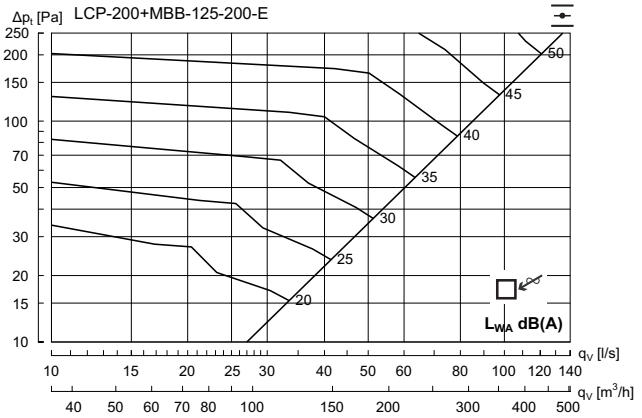
LCC/LKP/LCP 200 + MBB - Exhaust air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	15	5	0	-2	-6	-10	-15	-23



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	16	5	-1	-3	-5	-10	-15	-21

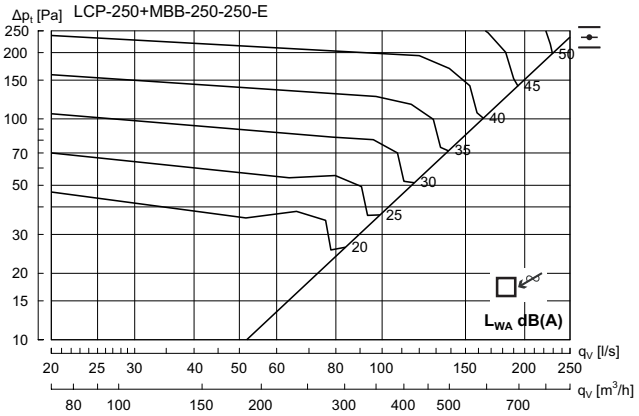


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	11	3	-1	-2	-5	-10	-16	-22

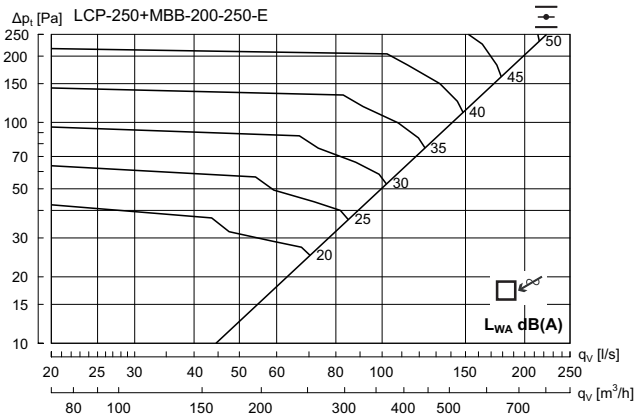
Plain diffuser LCC/LKP/LCP

Technical data

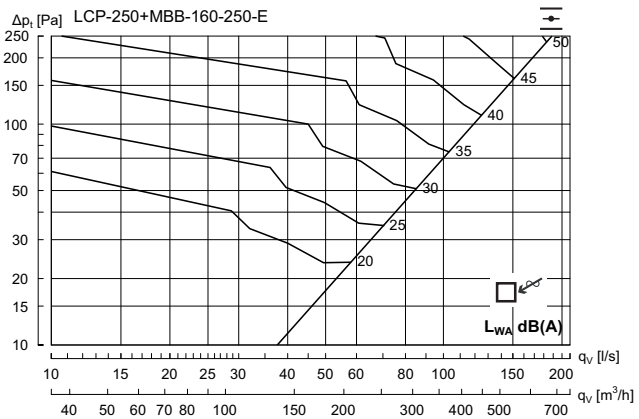
LCC/LKP/LCP 250 + MBB - Exhaust air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	11	4	1	-2	-5	-11	-17	-25

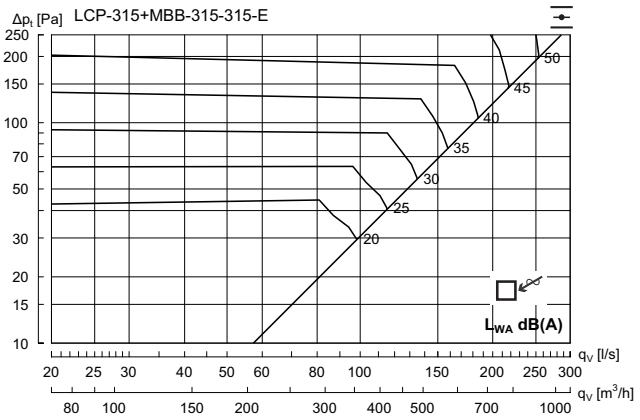


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	14	4	0	-2	-6	-11	-16	-25

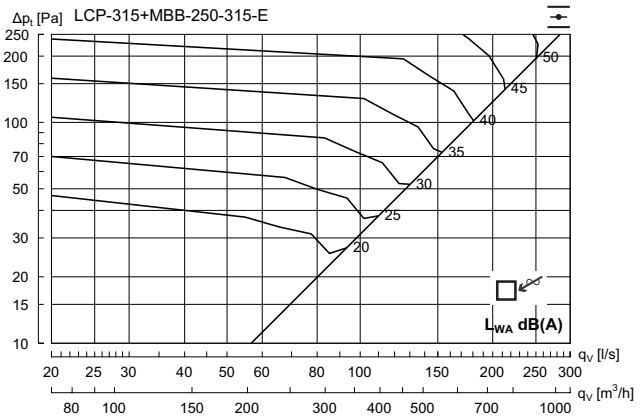


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	19	6	-1	-4	-5	-12	-18	-26

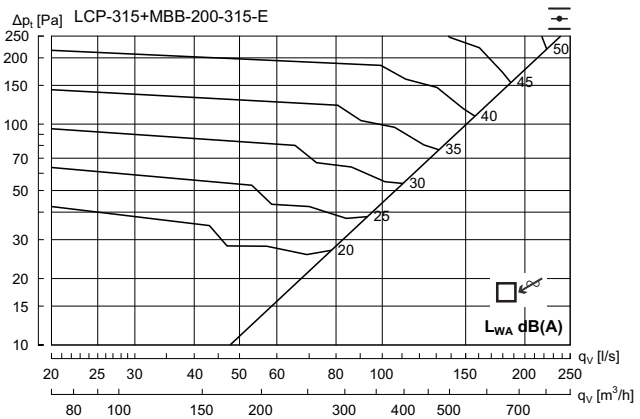
LCC/LKP/LCP 315 + MBB - Exhaust air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	12	4	2	-3	-6	-9	-18	-27



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	12	5	2	-3	-6	-10	-17	-24



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	14	5	0	-3	-5	-10	-16	-25

Lindab Versio

RS14, adjusted ceiling type Markant.

Lindab Versio

a series of ceiling adapted diffusers

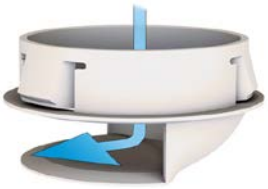
Diffusers for mixed ventilation

Diffusers

Product	Functions	Page
PS1		195
PS8		205
RS14		213
RS15		227
RS16		239
NS19		247
GS23		255

NS19-H.

NS19-V.



NS19-R.

NS19-V+MBB.

Lindab Versio

a series of ceiling adapted diffusers

CMC Biopharmaceuticals A/S, Søborg.

Lindab Versio

Lindab Versio is a series of square ceiling diffusers for supply and exhaust air adapted for false ceilings.
Versio is, as the name implies, a variety of possibilities to construct the diffuser to suit the specific need. A large selection of face plates with different designs meet requirements for both design and function. Different types of plenum boxes ensure the possibility to connect the diffuser to the duct system, and at the same time regulate the diffusers individually.
Versio can be adapted to most ceiling systems, so the diffuser will blend in naturally with the ceiling environment, and ensure a simple mounting, which will make the job easier when mounting the diffuser directly at the construction site.

Unique flexibility

Versio gives a unique freedom of selection and flexibility. The final configurated diffuser is simple to mount and is delivered finished and adapted to the individual ceiling system.

NS19 with plenum box type H.

Lindab Versio

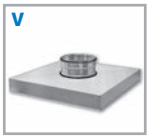
a series of ceiling adapted diffusers

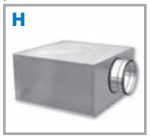
Design

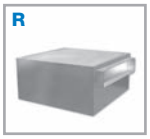
See Comfort and Design

Plenum boxes

Details, see chapter Plenum boxes







Product		Ventilation principle	Size	Dimension A x B (Only R box)	V H = 95 mm	H H = Ød + 90 mm	R H = 170 mm
	Perforated		mm	mm			
PS	No.: 1		125 160 200 250 315	200 x 100 300 x 100 400 x 100 500 x 100	● ● ● ●	● ● ● ●	● ● ● ●
	No.: 2 No.: 3 No.: 4		125 160 200 250 315	200 x 100 300 x 100 400 x 100 500 x 100	○ ○ ○ ○	○ ○ ○ ○	● ● ● ●
	Perforated rotation		mm	mm			
	No.: 8		125 160 200 250 315	200 x 100 300 x 100 400 x 100 500 x 100	● ● ● ●	● ● ● ●	● ● ● ●
	No.: 9 No.: 10 No.: 11		125 160 200 250 315	200 x 100 300 x 100 400 x 100 500 x 100	○ ○ ○ ○	● ● ● ●	● ● ● ●
	Swirl		mm	mm			
RS	No.: 14		125 160 200 250 315	200 x 100 300 x 100 400 x 100 500 x 100	● ● ● ●	● ● ● ●	○ ○ ○ ○
	No.: 15		125 160 200 250 315	200 x 100 300 x 100 400 x 100 500 x 100	● ● ●	● ● ●	○ ○ ○
	No.: 16		125 160 200 250 315	200 x 100 300 x 100 400 x 100 500 x 100	●	● ●	○
	Nozzles		mm	mm			
NS	No.: 19		125 160 200 250 315	200 x 100 300 x 100 400 x 100 500 x 100	● ● ● ●	● ● ● ●	● ● ● ●
	Grid		mm	mm			
GS	No.: 23		125 160 200 250 315	200 x 100 300 x 100 400 x 100 500 x 100	● ● ● ●	● ● ● ●	● ● ● ●

Lindab Versio

a series of ceiling adapted diffusers

Regulation Accessories

See product pages

Type	Size	Patterns	1 Damper	2 Damper/mea.dev.	MDR (PS1-4)	PBB	MHS	MBB
Grille box	mm							
V	160 200 250 315	300 400 500 600			● ● ●	● ● ● ●	● ● ● ●	● ● ● ●
Plenum box	mm		Damper	Damper/mea.dev..		PBB	MHS	MBB
H	125 160 200 250 315	300 400 500 600 600	● ● ● ● ●	● ● ● ● ●	● ● ● ●	● ● ● ● ●	● ● ● ● ●	
Rectangular connection	mm		Damper	Damper/mea.dev.	.	PBB	MHS	MBB
R	200 300 400 500	300 400 500 600	○ ○ ○ ○	○ ○ ○ ○	● ● ● ●	● ● ● ●	● ● ● ●	

- ● 1. Product and tech. data depicted in catalogue.
- ○ 2. Combination possible. Tech. data depicted in catalogue.
- ● 3. Combination possible. Tech. data not in catalogue.
- 4. If space is empty, combination is not possible.

Guide to diffuser selection

1. Lindab Versio starts with a product- and design choice based on function and design. Ex. : PS1 or RS14. The design is numbered, and specifically described in the chapter ”Comfort and Design”. Then a choice must be made of a grille box / plenum box depending on the type of connection, circular or rectangular, vertical or horizontal.

2. To obtain the desired function, one has to decide how the diffuser should be used: Supply (S), Exhaust (E), or Low-impulse(L). If the plenum box type H or R is chosen, it is necessary to know which type of regulation is required: without damper and measuring device (0), with damper without measuring device (1) or with damper and measuring device (2).

3. The connection dimension for the diffuser/plenum box is set, and finally the ceiling system is stated. The ceiling systems are numbered, and more specifically described in “Ceiling adaption”.

4. Lindab Versio is ready to order after making the specific choices. The final configurated product is named in the order. Ordering codes are also found on the product pages as well as in the rest of the product programme.

Example of ordering Versio + grille box/plenum box

In this example the order is for:
Square diffuser with non-adjustable swirl pattern. Integrated side-connected plenum box with connection dimension ø200. The diffuser should be supplied with damper and measuring device for individual regulation of the unit. The diffuser should be adapted to T24 600x600 system ceiling in a cleanable design.

RS14	H	S	2	200	1

Diffuser being ordered in the example

Lindab Versio

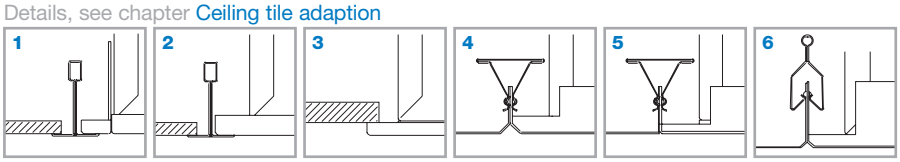
a series of ceiling adapted diffusers

Design

See Comfort and Design

Ceiling tile adaption

Details, see chapter Ceiling tile adaption



Product

Size

	1	2	3	4	5	6
	Danotile T24/T15 Ecophon T24 Rockfon A24.	Danotile T24/T15 Ecophon T24 Rockfon A24	Permanent ceiling	Dampa Clip-In Bevelled edge	Dampa Clip-In Square edge	Luxalon Clip-In
	Grille box/plenum boxes					
	mm	V H R	V H R	V H R	V H R	V H R	V H R
PS	**Perforated**						
	No.: 1	125 160 200 250 315					
	No.: 2 No.: 3 No.: 4	125 160 200 250 315					
	Perforated rotation						
	No.: 8	125 160 200 250 315					
	No.: 9 No.: 10 No.: 11	125 160 200 250 315					
RS	**Swirl**						
	No.: 14	125 160 200 250 315					
	No.: 15	125 160 200 250 315					
	No.: 16	125 160 200 250 315					
NS	**Nozzles**						
	No.: 19	125 160 200 250 315					
GS	**Grid**						
	No.: 23	125 160 200 250 315					

Lindab Versio

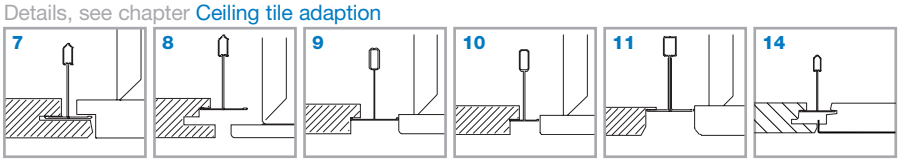
a series of ceiling adapted diffusers

Design

See Comfort and Design

Ceiling tile adaption

Details, see chapter Ceiling tile adaption



Product

Size

			Danotile Contur Ecophon D Rockfon D-XL			Ecophon Focus DG			Rockfon E10 24 Ecophon - E / T24			Rockfon E10 15 Ecophon - E / T15			Danotile Markant			Ecophone Focus edge DS		
			Grille box/plenum boxes														
	Perforated	mm	V	H	R	V	H	R	V	H	R	V	H	R	V	H	R	V	H	R
PS	No.: 1	125																		
		160																		
		200																		
		250																		
		315																		
	No.: 3 No.: 4	125																		
		160																		
		200																		
		250																		
		315																		
	Perforated rotation	mm	V	H	R	V	H	R	V	H	R	V	H	R	V	H	R	V	H	R
	No.: 8	125																		
		160																		
		200																		
		250																		
		315																		
	No.: 9 No.: 10 No.: 11	125																		
		160																		
		200																		
		250																		
		315																		
	Swirl	mm	V	H	R	V	H	R	V	H	R	V	H	R	V	H	R	V	H	R
RS	No.: 14	125																		
		160																		
		200																		
		250																		
		315																		
	No.: 15	125																		
		160																		
		200																		
		250																		
		315																		
	No.: 16	125																		
		160																		
		200																		
		250																		
		315																		
	Nozzles	mm	V	H	R	V	H	R	V	H	R	V	H	R	V	H	R	V	H	R
NS	No.: 19	125																		
		160																		
		200																		
		250																		
		315																		
	Grid	mm	V	H	R	V	H	R	V	H	R	V	H	R	V	H	R	V	H	R
GS	No.: 23	125																		
		160																		
		200																		
		250																		
		315																		

Lindab Versio

a series of ceiling adapted diffusers

NS19.

Versio PS1

PS1 with grille box type V

PS1 with plenum box type H

Description

PS1 is a square perforated diffuser. PS1 can be used for both supply and exhaust air. PS1 is suitable for the horizontal supply of cooled air. PS1 can also be used for low impulse and is therefore useful for the supply of replacement air in environments with high rates of air exchange.

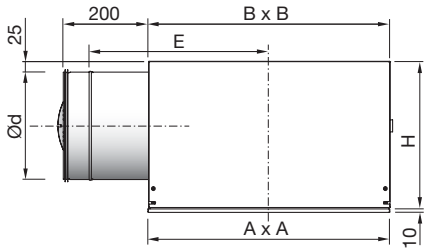
- Suitable for both supply and exhaust air
- The possibility of 1-2-3-way dispersal
- Can be used for low impulse

Order code

Product		**PS**	**a**	**b**	**c**	**d**	**eee**	**f**
Type								
PS								
Design								
1 - 2 - 3- 4								
Box type								
V - H - R								
Functional use								
S = Supply air								
E = Exhaust	Box type R , only exhaust							
L = Low-impulse								
Damper								
0 = No damper	(Box : H, V)							
1 = Damper	(Box : H, R)							
2 = Damper / Meas.outlets	(Box : H)							
Connection dim.								
Ø200-315	(Box : V)							
Ø160-315	(Box : H)							
200x100 - 500x100	(Box : R)							
Ceiling system								
1 - 14	Go to chapter Ceiling tile adaption							

Example: PS-1-V-S-0-200-1

Dimensions



PS1-H Ød	Pattern	A mm	B mm	H mm	E mm	Weight kg
160	400	*-	380	250	350	5,9
200	500	*-	460	290	390	8.50
250	600	*-	560	340	420	12.3
315	600	*-	560	405	420	13.1

* Face plate dimension A x A depends on ceiling system. See **"Ceiling adjustment"** for detailed dimensions. For further details on plenum box - see **"Plenum boxes"**.

Maintenance

The face plate can be removed to enable cleaning of internal parts or to gain access to the duct or box. The visible parts of the diffuser can be wiped with a damp cloth.

Materials and finish

Grille box/plenum box:
Material: Galvanised steel

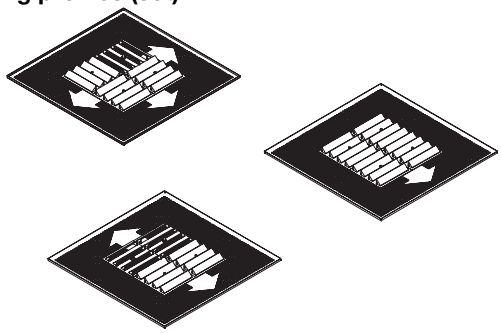
Face plate:
Material: Galvanised steel
Standard finish: Powder-coated
Standard colour: RAL 9010, gloss 30

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

Versio PS1

Accessories

Blending profiles (set) MDR

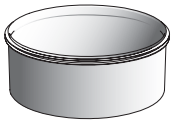


Order code

Product	MDR	aaa
Type		
Pattern		

Example: MDR-200

Extension piece MBZ



Order code

Product	MBZ	aaa
Type		
Size		

Example: MBZ-200

Mounting bracket PBB

Suspension MHS

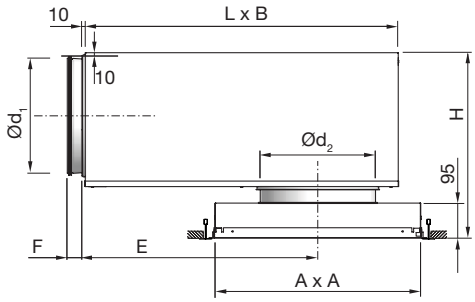
Order code

Product	aaa
Type	

Example: MHS

Plenum box MBB

PS1-V + MBB



PS1-V + MBB duct Ød1 mm	PS1-V Ød2 mm	Pattern	B mm	E mm	F mm	H* mm	L mm
125	200	400	310	262	50	280 - 320	376
160	200	400	380	323	50	314 - 354	459
160	250	500	380	323	50	314 - 354	459
200	200	400	460	396	70	355 - 395	565
200	250	500	460	396	70	355 - 395	565
200	315	600	460	396	70	355 - 395	565
250	250	500	540	486	70	405 - 445	698
250	315	600	540	486	70	405 - 445	698
315	315	600	540	646	70	470 - 510	858

* Using accessory MBZ the H dimension will increase:
$Ød_2$ = 200 mm => H +40 mm
$Ød_2$ = 250 - 315 mm => H +60 mm

Order code

Product	MBB	aaa	bbb	c
Type				
MBB				
Duct connection $Ød_1$				
Ø125-315				
Diffuser dimension $Ød_2$				
Ø200-315				
Functional use				
S = Supply air				
E = Exhaust				

Example: PS-1-V-S-0-200-1+MBB-200-200-S

Versio

PS1

Technical data

Capacity

Air flow q_v [l/s] and [m^3/h], total pressure Δp_t [Pa], throw $l_{0.2}$ [m] and sound power 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 $L_{WA}+K_{ok}$. K_{ok} values are specified in charts beneath the diagrams on the following pages.

Quick selection, supply air

PS1-V + MBB

PS1-V + MBB		$\Delta p_t \geq 50$ Pa		$\Delta p_t \geq 50$ Pa	
duct	PS1-V	30 dB(A)		35 dB(A)	
$Ød_1$	$Ød_2$	l/s	m^3/h	l/s	m^3/h
125	200	58	209	70	252
160	200	63	227	77	277
160	250	71	256	90	324
200	200	82	295	97	349
200	250	88	317	108	389
200	315	108	389	139	500
250	250	106	382	124	446
250	315	124	446	150	540
315	315	152	547	183	659

Supply air

PS1 + H

PS1 + H			$\Delta p_t \geq 50$ Pa		$\Delta p_t \geq 50$ Pa	
Size Ød	Minimum		30 dB(A)		35 dB(A)	
mm	l/s	m^3/h	l/s	m^3/h	l/s	m^3/h
160	30	108	51	184	57	205
200	49	176	69	248	83	299
250	49	176	93	335	114	410
315	82	295	140	504	164	590

Sound attenuation

Sound attenuation of the diffusers ΔL from duct to room, including end reflection - see table below.

PS1-V + MBB

PS1-V + MBB		Centre frequency Hz							
duct	PS1-V								
$Ød_1$	$Ød_2$	63	125	250	500	1K	2K	4K	8K
125	200	14	11	4	15	15	15	16	17
160	200	14	14	7	22	18	17	19	20
160	250	14	14	4	17	15	15	16	19
200	200	13	10	7	16	19	17	19	18
200	250	11	9	6	15	17	15	18	16
200	315	13	8	3	12	16	14	16	15
250	250	14	8	8	16	18	17	17	18
250	315	14	7	5	14	16	15	16	17
315	315	8	9	9	15	17	16	17	21

PS1 + H

PS1 + H	Centre frequency Hz							
Size Ød								
mm	63	125	250	500	1K	2K	4K	8K
160	18	15	5	13	11	11	9	10
200	16	10	6	15	11	11	12	14
250	14	9	7	13	8	9	12	14
315	12	8	8	14	10	9	11	14

Mounting -and balancing instruction

For futher information go to www.lindQST.com and installation -and balancing instruction.

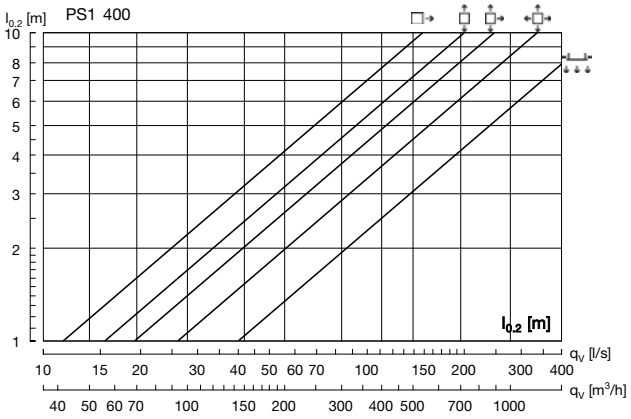
Versio

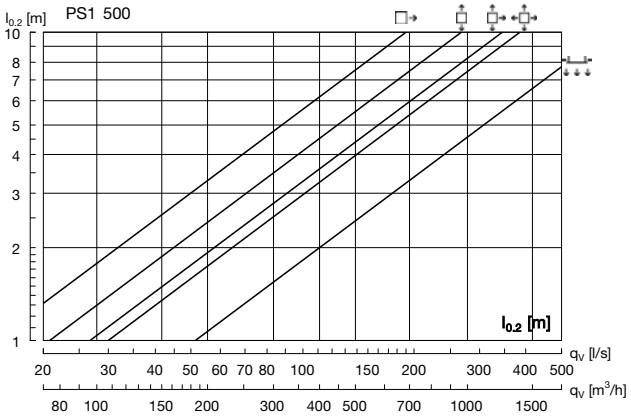
PS1

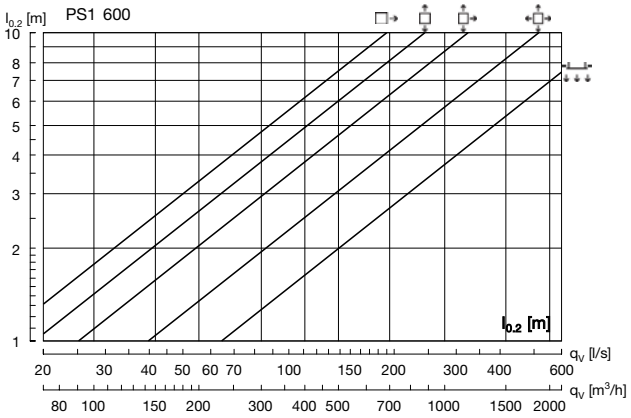
Technical data

Throw $l_{0.2}$

Throw $l_{0.2}$ [m] is specified at a terminal velocity of 0.2 m/s.

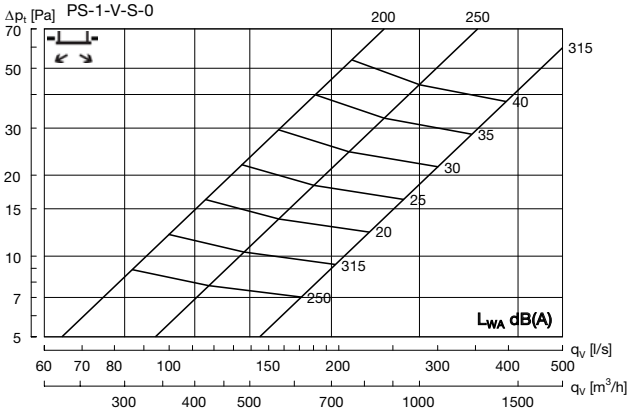




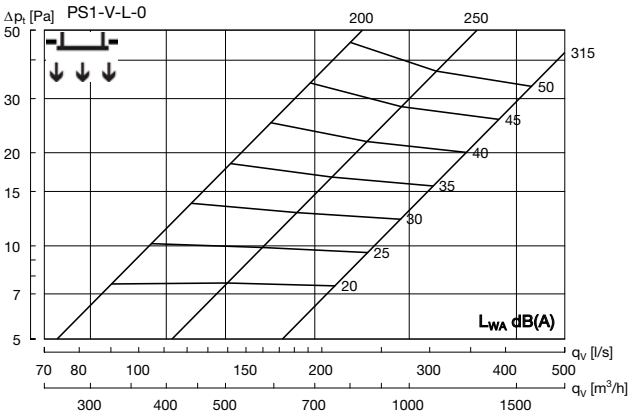


PS1-V without MBB

Supply air



Low-impulse



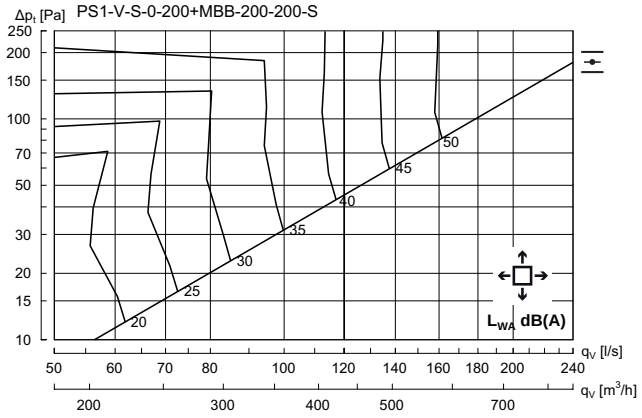
Concerning low impulse, go to planning guide in chapter 12 "Low impulse"

Versio

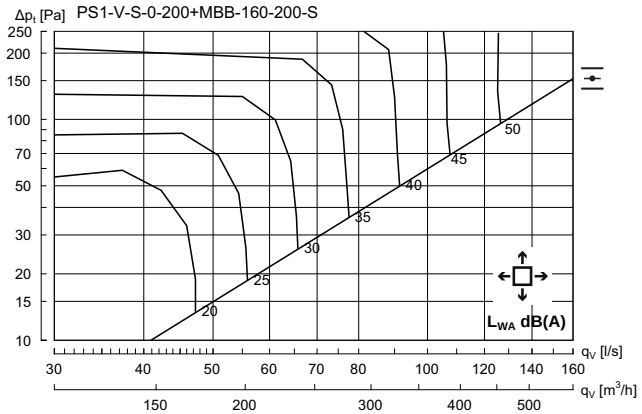
PS1

Technical data

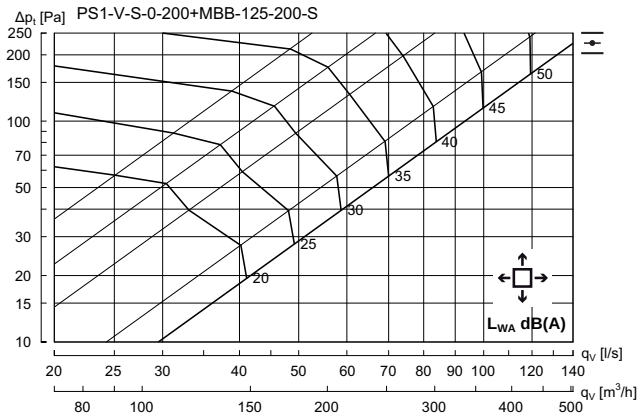
PS1-V 200 + MBB - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	13	0	-6	0	-4	-17	-25	-32

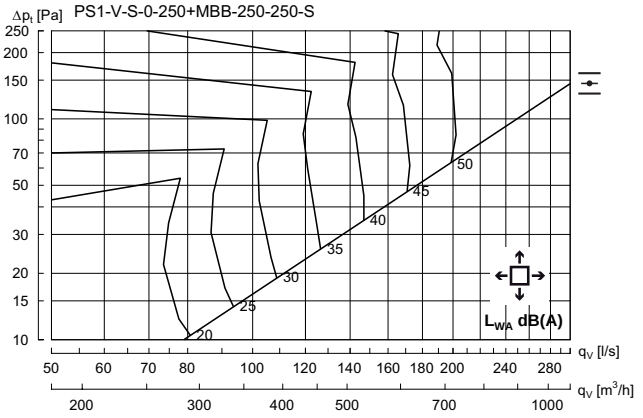


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	8	3	-3	-1	-4	-14	-21	-27

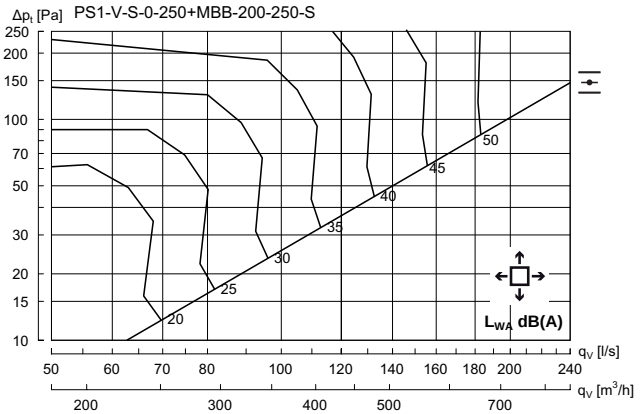


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	9	5	1	-2	-6	-10	-15	-22

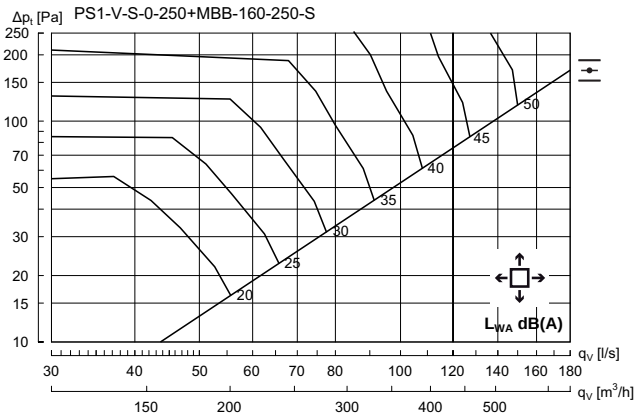
PS1-V 250 + MBB - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	10	-1	-6	0	-4	-18	-25	-33



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	9	4	-4	-1	-4	-15	-22	-28

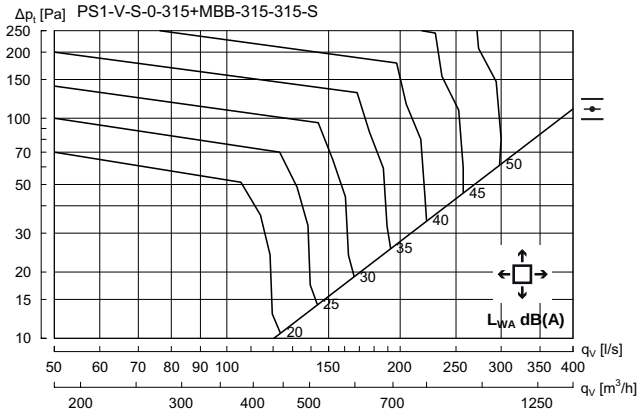


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	15	3	-1	-3	-4	-12	-19	-24

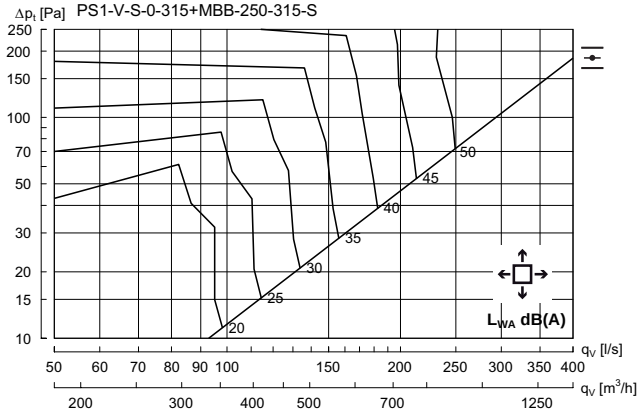
Versio PS1

Technical data

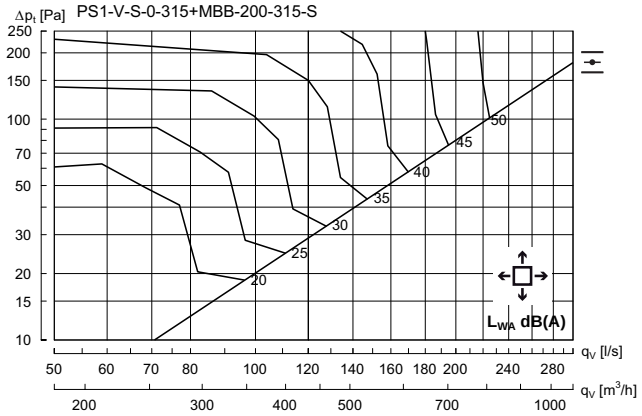
PS1-V 315 + MBB - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	12	0	-3	-1	-4	-16	-22	-28



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	9	4	-3	-1	-4	-15	-22	-28



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	10	5	-1	-2	-4	-12	-19	-25

Low-impulse correction, sound power level (L_{WA}) and pressure loss (Δp_t)

On the previous pages you can find diagrams for all sizes PS1-V+MBB supply air. When low-impulse values are wanted, use the correction factors in the table below.

PS1-V + MBB

PS1-V + MBB duct $Ød_1$	PS1-V $Ød_2$	Low-impulse Correction factor L_{WA}	Δp_t
125	200	-1	x 1
160	200	-2	x 0,9
160	250	0	x 1
200	200	-3	x0,9
200	250	0	x 1
200	315	0	x 1
250	250	0	x 1
250	315	0	x 1
315	315	0	x 1

Concerning low impulse, go to planning guide in chapter 12 "Low impulse"

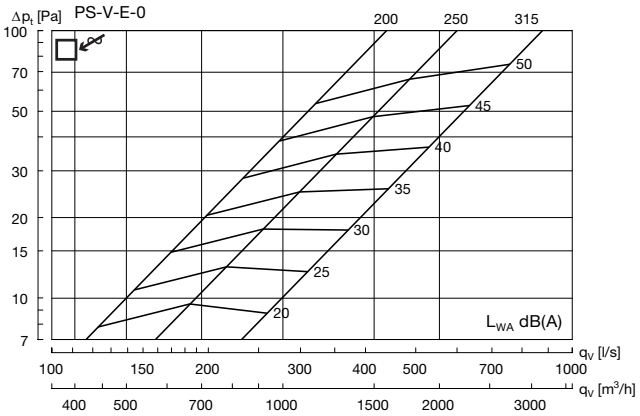
Versio

PS1

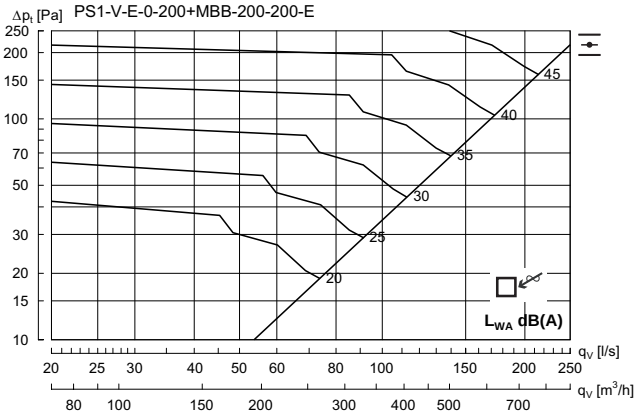
Technical data

PS1-V without MBB

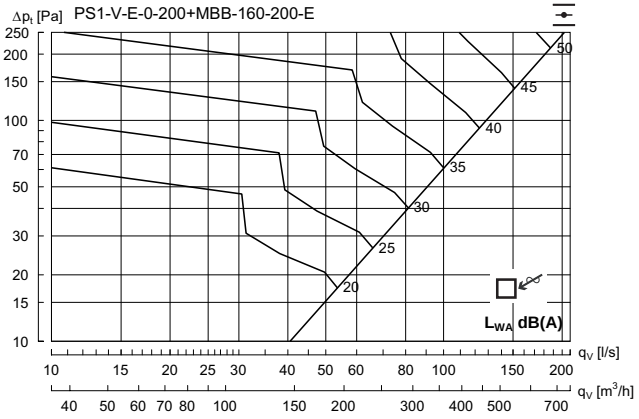
Exhaust air



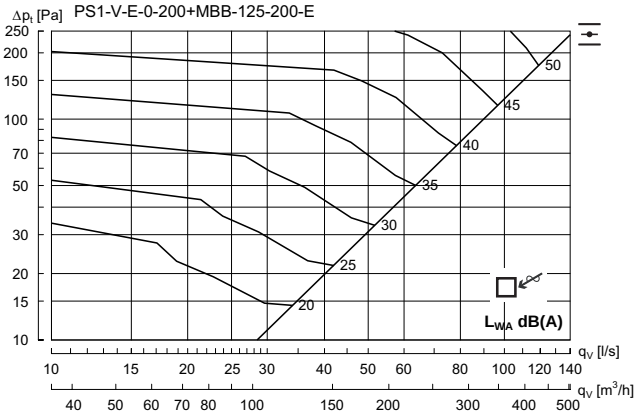
PS1-V 200 + MBB - Exhaust air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	15	5	1	-3	-6	-10	-14	-23



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	16	6	0	-3	-7	-9	-15	-21



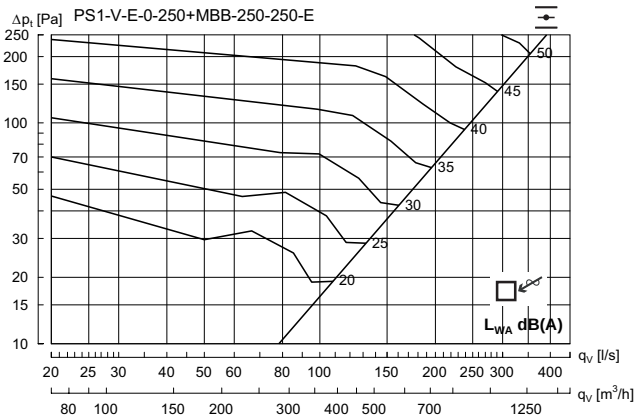
Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	10	4	2	-2	-6	-10	-15	-22

Versio

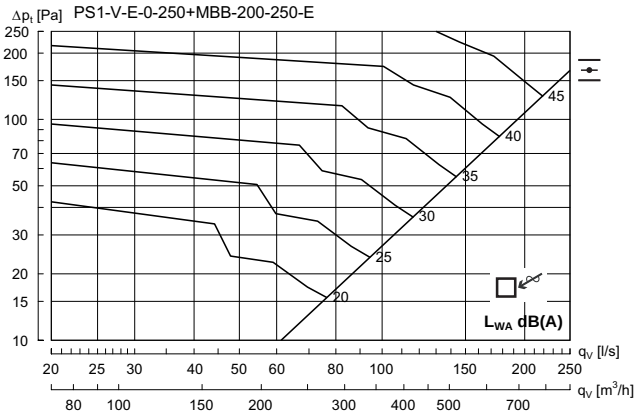
PS1

Technical data

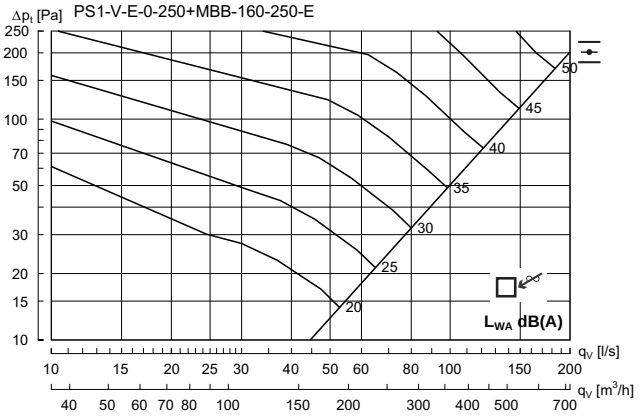
PS1-V 250 + MBB - Exhaust air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	10	6	2	-3	-6	-10	-15	-23

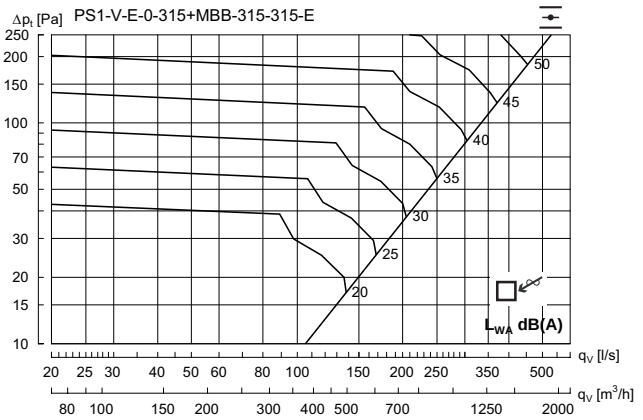


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	14	5	1	-3	-5	-10	-15	-22

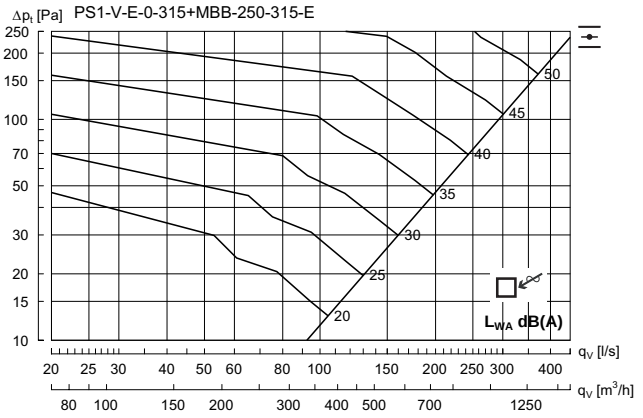


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	15	6	0	-3	-6	-9	-14	-21

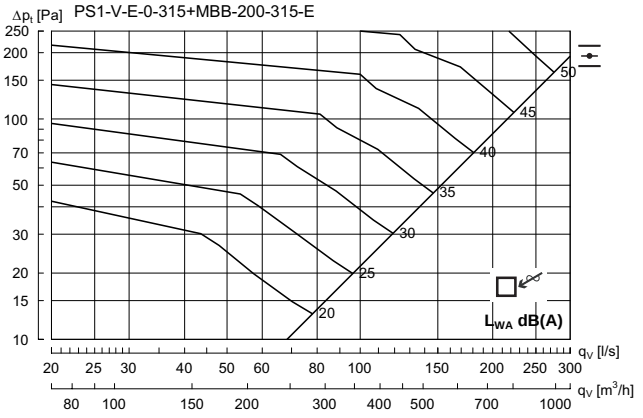
PS1-V 315 + MBB - Exhaust air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	11	5	3	-3	-7	-10	-15	-26



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	11	5	2	-3	-6	-11	-16	-23



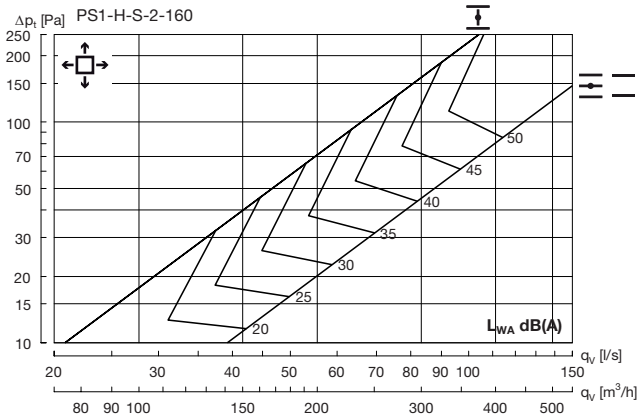
Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	13	5	1	-3	-6	-10	-14	-22

Versio

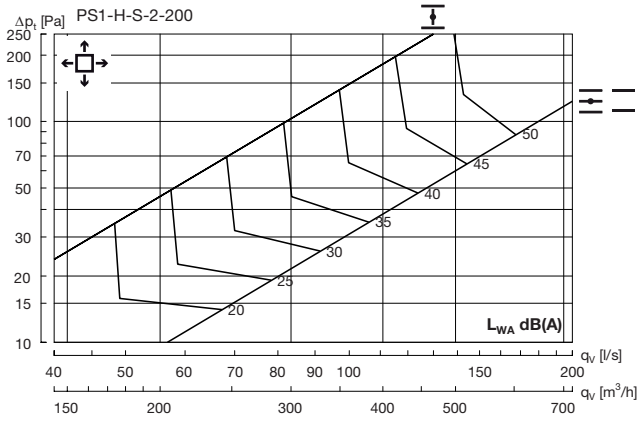
PS1

Technical data

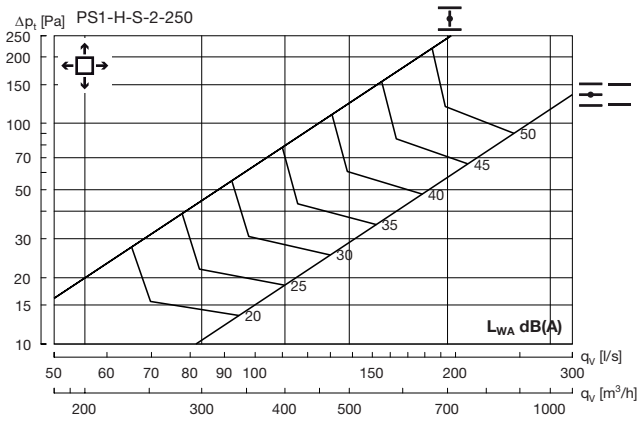
PS1+H - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	8	4	3	-3	-6	-11	-15	-14

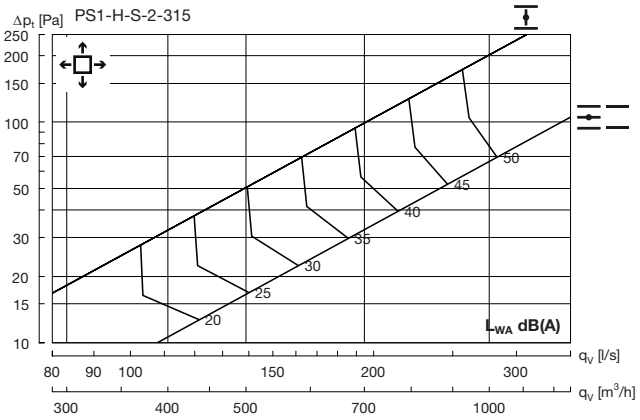


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	5	5	1	-1	-7	-12	-12	-18



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	9	5	2	-1	-7	-14	-18	-19

PS1+H - Supply air



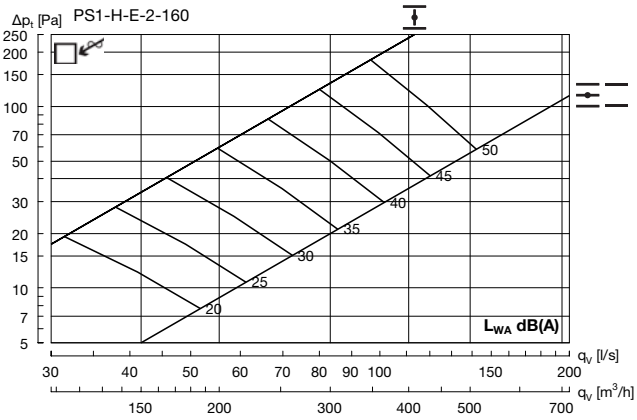
Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	13	4	0	-1	-6	-13	-17	-27

Versio

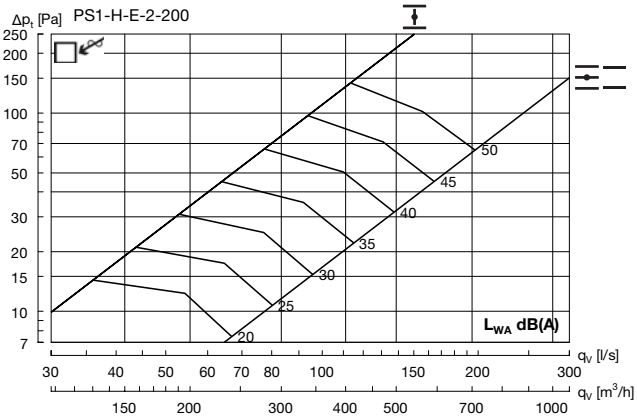
PS1

Technical data

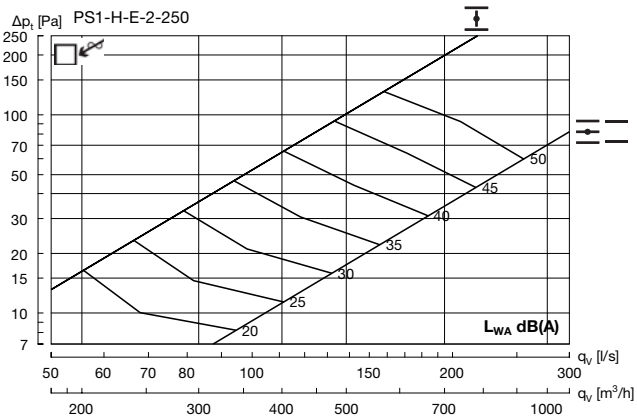
PS1+H - Exhaust air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	10	4	6	-3	-11	-12	-19	-25

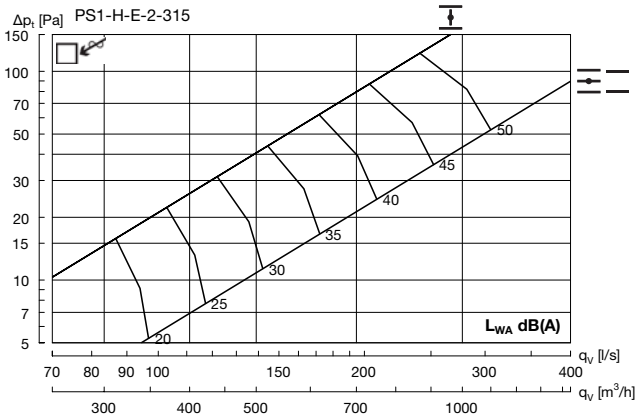


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	10	4	5	-2	-9	-13	-21	-29



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	11	5	2	-2	-6	-12	-22	-32

PS1+H - Exhaust air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	11	3	1	1	-8	-16	-26	-37

Versio

PS8

PS8 with grille box type V

PS8 with plenum box type H

Description

PS8 is a square perforated diffuser with swirl insert. PS8 fits naturally into the ceiling and maintains the excellent technical properties of swirl diffusers. The swirl pattern ensures high induction and a large dynamic range, and is therefore ideal for the horizontal supply of very cold air.

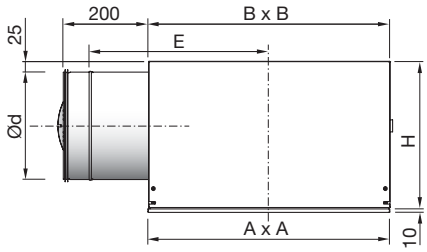
- Discrete appearance
- Large dynamic range
- High induction
- Ideal for the supply of very cold air

Order code

Product		**PS**	**a**	**b**	**S**	**d**	**eee**	**f**
Type								
PS								
Design								
8 - 9 - 10 - 11								
Box type								
V - H - R								
Functional use								
S = Supply air								
Damper								
0 = No damper	(Box	: H, V)						
1 = Damper	(Box	: H, R)						
2 = Damper / Meas.outlets	(Box	: H)						
Connection dim.								
Ø160-315	(Box	: V)						
Ø125-315	(Box	: H)						
200x100 - 500x100	(Box	: R)						
Ceiling system								
1 - 14	Go to chapter Ceiling tile adaption							

Example: PS-8-V-S-0-200-1

Dimensions



PS8-H Ød	Pattern	A mm	B mm	H mm	E mm	Weight kg
125	300	*-	380	215	350	5.9
160	400	*-	380	250	350	5.9
200	500	*-	460	290	390	8.5
250	600	*-	560	340	420	12.3
315	600	*-	560	405	420	13.1

* Face plate dimension depends on ceiling system. See **"Ceiling adjustment"** for detailed dimensions. For further details on plenum box - see **"Plenum boxes"**.

Maintenance

The face plate can be removed to enable cleaning of internal parts or to gain access to the duct or box. The visible parts of the diffuser can be wiped with a damp cloth.

Materials and finish

Grille box/plenum box:

Material: Galvanised steel

Face plate:

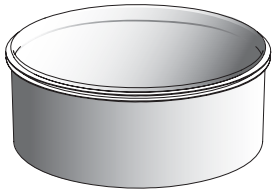
Material: Galvanised steel
Standard finish: Powder-coated
Standard colour: RAL 9010, gloss 30

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

Versio PS8

Accessories

Extension piece MBZ



Order code

Product	MBZ	aaa
Type		
Size		

Example: MBZ-200

Mounting bracket PBB

Suspension MHS

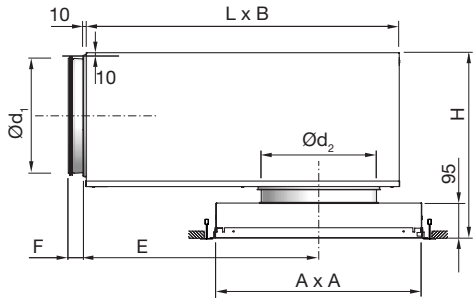
Order code

Product	aaa
Type	

Example: MHS

Plenum box MBB

PS8-V + MBB



PS8-V + MBB							
duct	PS8-V		B	E	F	H*	L
Ød1 mm	Ød2 mm	Pattern	mm	mm	mm	mm	mm
100	160	300	260	216	50	255 - 295	310
125	160	300	310	262	50	280 - 320	376
125	200	400	310	262	50	280 - 320	376
160	160	300	380	323	50	314 - 354	459
160	200	400	380	323	50	314 - 354	459
160	250	500	380	323	50	314 - 354	459
200	200	400	460	396	70	355 - 395	565
200	250	500	460	396	70	355 - 395	565
200	315	600	460	396	70	355 - 395	565
250	250	500	540	486	70	405 - 445	698
250	315	600	540	486	70	405 - 445	698
315	315	600	540	646	70	470 - 510	858

* Using accessory MBZ the H dimension will increase:
$Ød_2$ = 160 - 200 mm => H +40 mm
$Ød_2$ = 250 - 315 mm => H +60 mm

Order code

Product	MBB	aaa	bbb	c
Type				
MBB				
Duct connection $Ød_1$				
Ø100-315				
Diffuser dimension $Ød_2$				
Ø160-315				
Functional use				
S = Supply air				
E = Exhaust				

Example: PS-8-V-S-0-200-1+MBB-200-200-S

Versio

PS8

Technical data

Capacity

Air flow q_v [l/s] and [m^3/h], total pressure Δp_t [Pa], throw $l_{0.2}$ [m] and sound power 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 $L_{WA}+K_{ok}$. K_{ok} values are specified in charts beneath the diagrams on the following pages.

Quick selection, supply air

PS8-V + MBB

PS8-V + MBB		$\Delta p_t \geq 50$ Pa		$\Delta p_t \geq 50$ Pa	
duct	PS8-V	30 dB(A)		35 dB(A)	
$Ød_1$	$Ød_2$	l/s	m^3/h	l/s	m^3/h
100	160	31	112	38	137
125	160	36	130	43	155
125	200	48	173	60	216
160	160	37	133	44	158
160	200	52	187	62	223
160	250	67	241	84	302
200	200	59	212	70	252
200	250	82	295	98	353
200	315	72	259	88	317
250	250	83	299	97	349
250	315	81	292	96	346
315	315	-	-	102	367

Supply air

PS8 + H

PS8 + H			$\Delta p_t \geq 50$ Pa		$\Delta p_t \geq 50$ Pa	
Size Ød	Minimum		30 dB(A)		35 dB(A)	
mm	l/s	m^3/h	l/s	m^3/h	l/s	m^3/h
125	26	93	23	83	29	104
160	33	118	46	166	54	194
200	57	204	61	220	74	266
250	71	254	-	-	106	382
315	95	342	-	-	-	-

Sound attenuation

Sound attenuation of the diffusers ΔL from duct to room, including end reflection - see table below.

PS8-V + MBB

PS8-V + MBB		Centre frequency Hz							
duct	PS8-V								
$Ød_1$	$Ød_2$	63	125	250	500	1K	2K	4K	8K
100	160	18	16	5	17	20	19	17	21
125	160	16	13	9	19	18	18	18	20
125	200	14	11	5	15	16	17	17	19
160	160	15	16	11	23	20	20	21	21
160	200	15	15	8	22	20	18	20	20
160	250	16	13	5	18	16	16	17	20
200	200	14	11	7	17	21	17	20	18
200	250	14	9	5	14	18	15	18	17
200	315	13	9	3	13	17	15	17	16
250	250	13	8	7	17	18	18	18	18
250	315	16	7	5	16	16	17	17	18
315	315	9	9	9	16	17	17	18	23

PS8 + H

PS8 + H	Centre frequency Hz							
Size Ød								
mm	63	125	250	500	1K	2K	4K	8K
125	18	13	8	19	14	11	12	15
160	18	12	3	14	13	7	7	8
200	14	9	3	14	9	7	8	11
250	14	8	7	10	8	7	9	12
315	12	6	8	13	8	7	10	12

Installation -and balancing instruction

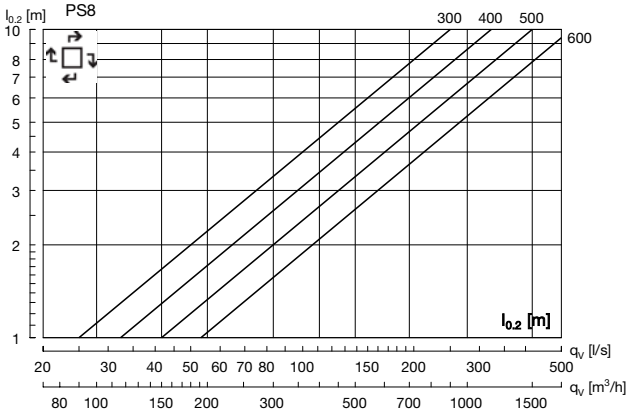
For futher information go to www.lindQST.com and Installation -and balancing instruction.

Versio PS8

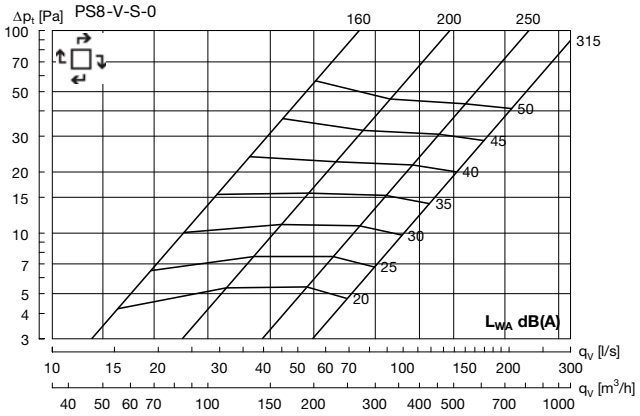
Technical data

Throw $l_{0.2}$

Throw $l_{0.2}$ [m] is specified at a terminal velocity of 0.2 m/s. The designation by the lines specifies the pattern on the face plate.



PS8-V without plenum box – Supply air

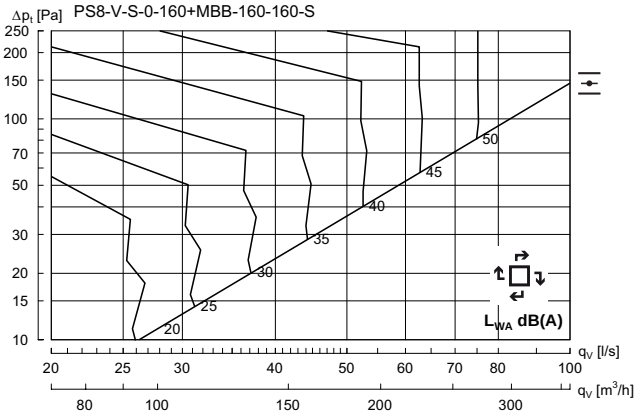


Versio

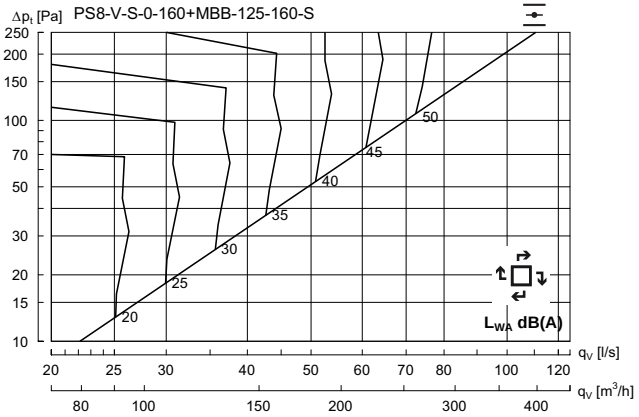
PS8

Technical data

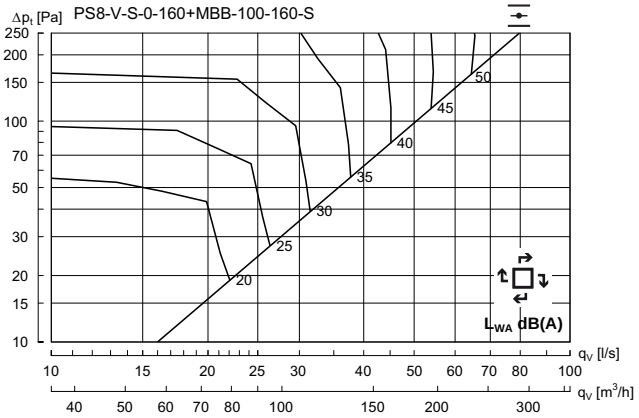
PS8-V 160 + MBB - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	9	0	-2	1	-7	-17	-28	-38

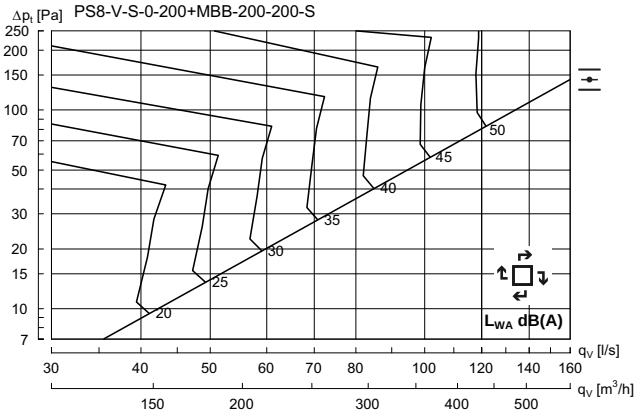


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	8	3	-1	1	-7	-16	-24	-31

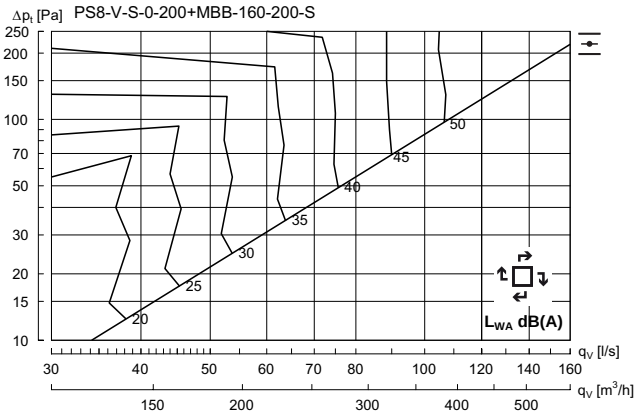


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	10	3	3	-1	-8	-14	-18	-23

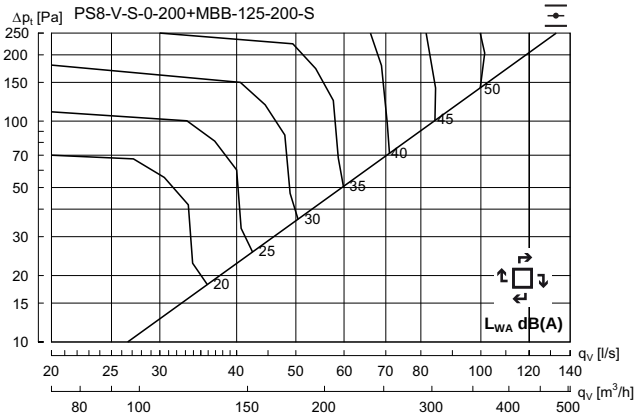
PS8-V 200 + MBB - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	13	0	-5	1	-6	-20	-29	-40



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



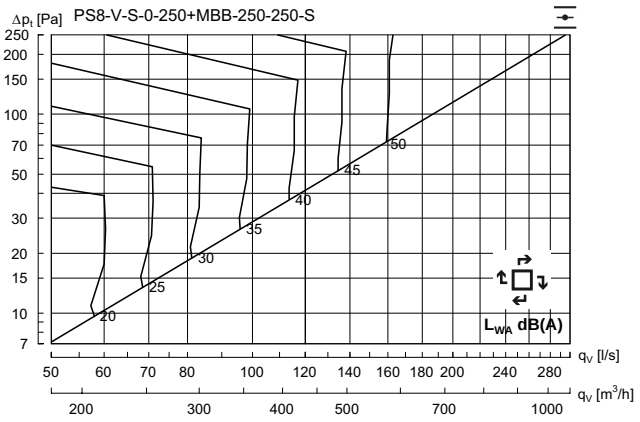
Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	6	5	2	-1	-6	-13	-19	-25

Versio

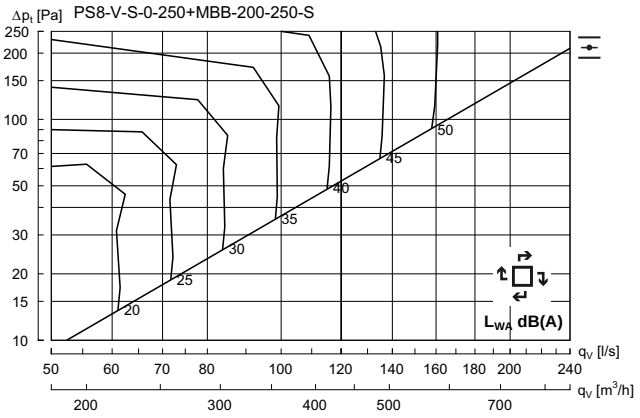
PS8

Technical data

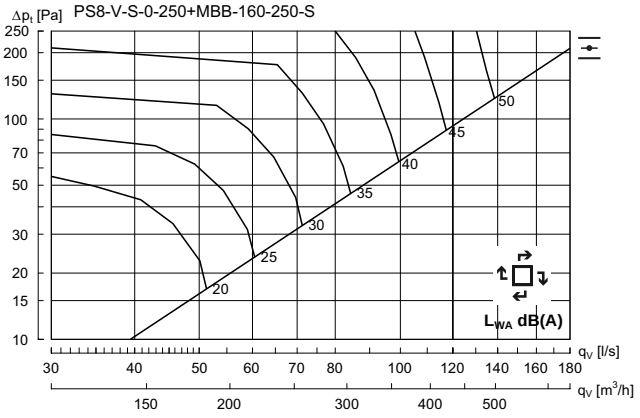
PS8-V 250 + MBB - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	8	0	-5	1	-6	-19	-28	-40

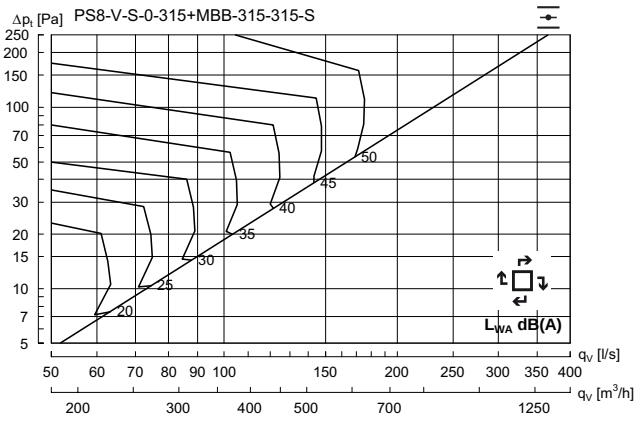


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	12	4	-2	0	-6	-16	-20	-26

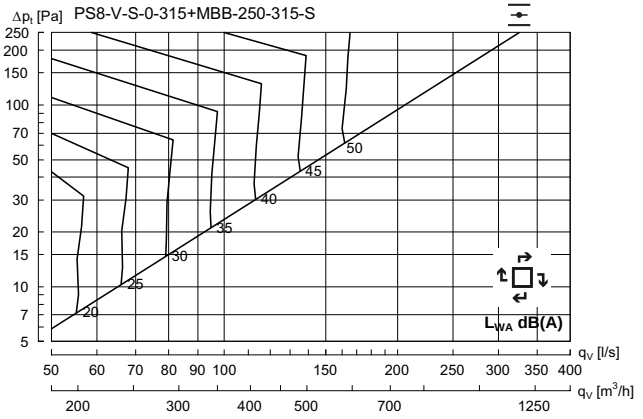


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	15	5	1	-2	-5	-13	-20	-26

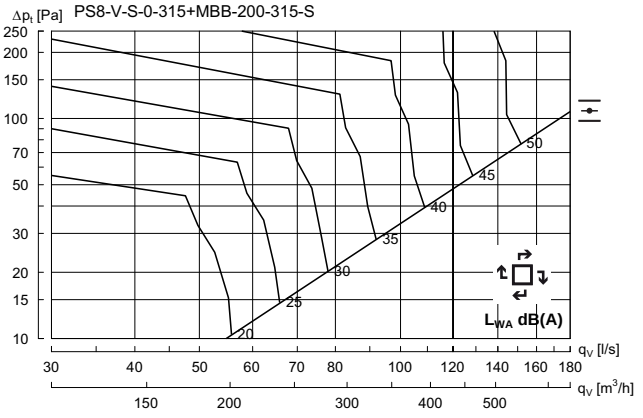
PS8-V 315 + MBB - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	11	-4	-2	1	-7	-21	-26	-35



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	8	0	-3	2	-8	-21	-29	-39



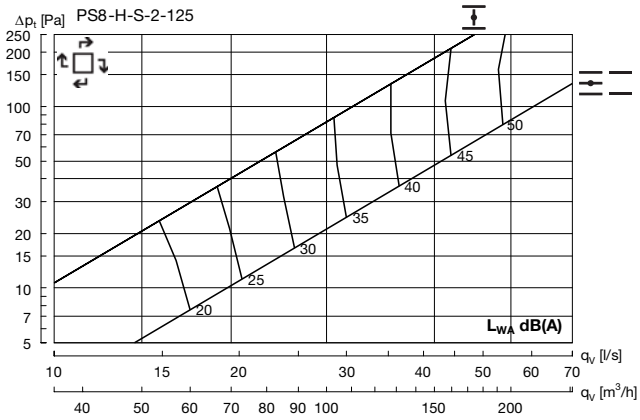
Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	10	2	-1	1	-7	-18	-23	-29

Versio

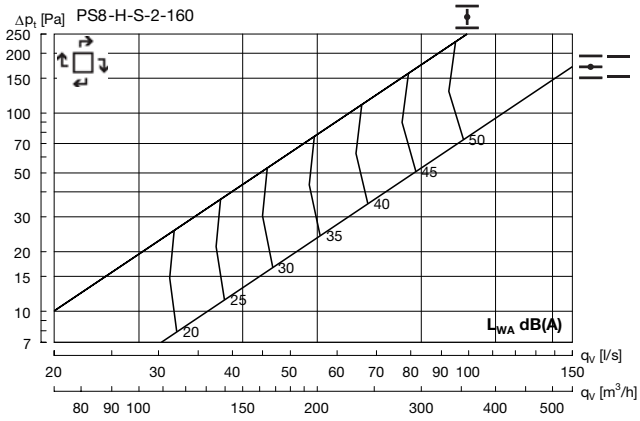
PS8

Technical data

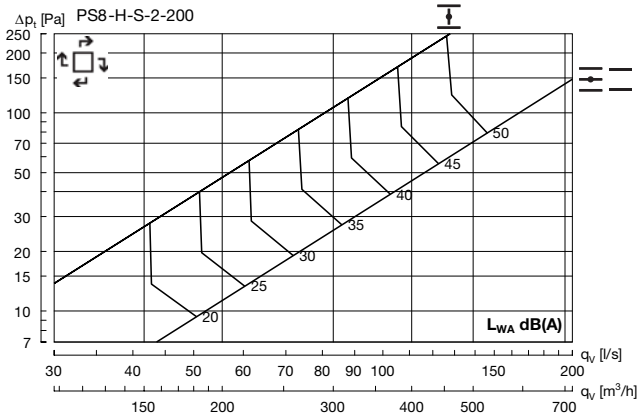
PS8 + H - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	3	4	4	0	-10	-18	-25	-31

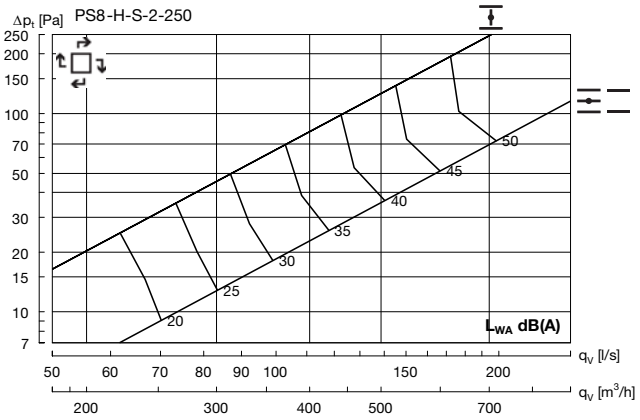


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	1	3	5	-2	-9	-19	-25	-32

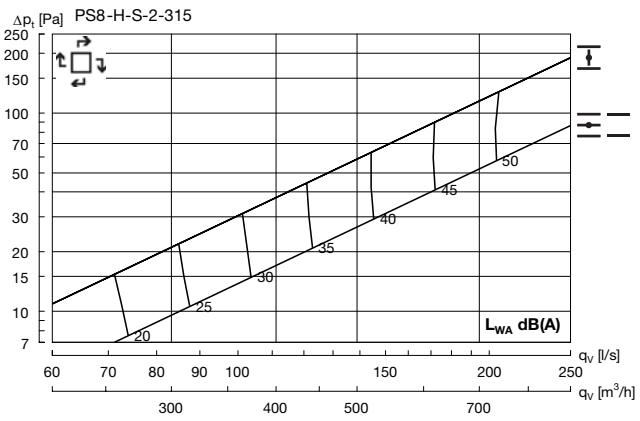


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	7	7	3	-1	-7	-16	-23	-29

PS8 + H - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	5	6	4	-1	-8	-18	-26	-33



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	7	5	3	0	-9	-21	-31	-41

Versio

RS14

RS14 with grille box type V

RS14 with plenum box type H

Description

RS14 is a square swirl diffuser with fixed bars. RS14 can be used for both supply and exhaust air. The swirl pattern ensures high induction and a large dynamic range. It is therefore ideal for the horizontal supply of very cold air.

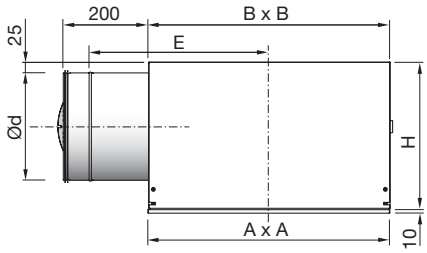
- Large dynamic range
- High induction
- Suitable for cooling at very low temperatures
- Can be used for both supply air and exhaust

Order code

Product		**RS**	**14**	**b**	**c**	**d**	**eee**	**f**
Type								
RS								
Design								
14								
Box type								
V - H - R								
Functional use								
S = Supply air								
E = Exhaust								
Damper								
0 = No damper	(Box	: H, V)						
1 = Damper	(Box	: H, R)						
2 = Damper / Meas.outlets	(Box	: H)						
Connection dim.								
Ø160-315	(Box	: V)						
Ø125-315	(Box	: H)						
200x100 - 500x100	(Box	: R)						
Ceiling system								
1 - 14	Go to chapter Ceiling tile adaption							

Example: RS-14-V-S-0-200-1

Dimensions



RS14-H Ød	Pattern	A mm	B mm	H mm	E mm	Weight kg
125	400	*-	380	215	350	5.9
160	400	*-	380	250	350	5.9
200	500	*-	460	290	390	8.5
250	600	*-	560	340	420	12.3
315	600	*-	560	405	420	13.1

* Face plate dimension A x A depends on ceiling system. See **"Ceiling adjustment"** for detailed dimensions. For further details on plenum box - see **"Plenum boxes"**.

Maintenance
The face plate can be removed to enable cleaning of internal parts or to gain access to the duct or box. The visible parts of the diffuser can be wiped with a damp cloth.

Materials and finish

Grille box/plenum box:
Material: Galvanised steel

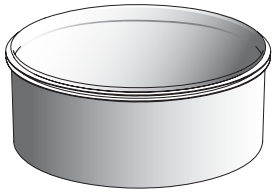
Face plate:
Material: Galvanised steel
Standard finish: Powder-coated
Standard colour: RAL 9010, gloss 30

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

Versio RS14

Accessories

Extension piece MBZ



Order code

Product	MBZ	aaa
Type		
Size		

Example: MBZ-200

Mounting bracket PBB

Suspension MHS

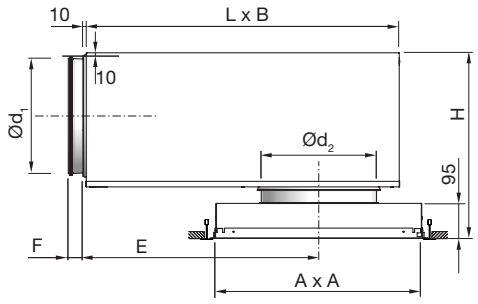
Order code

Product	aaa
Type	

Example: MHS

Plenum box MBB

RS14-V + MBB



RS14-V + MBB duct Ød1 mm	RS14-V Ød2 mm	Pattern	B mm	E mm	F mm	H* mm	L mm
100	160	300	260	216	50	255 - 295	310
125	160	300	310	262	50	280 - 320	376
125	200	400	310	262	50	280 - 320	376
160	160	300	380	323	50	314 - 354	459
160	200	400	380	323	50	314 - 354	459
160	250	500	380	323	50	314 - 354	459
200	200	400	460	396	70	355 - 395	565
200	250	500	460	396	70	355 - 395	565
200	315	600	460	396	70	355 - 395	565
250	250	500	540	486	70	405 - 445	698
250	315	600	540	486	70	405 - 445	698
315	315	600	540	646	70	470 - 510	858

* Using accessory MBZ the H dimension will increase:
$Ød_2$ = 160 - 200 mm => H +40 mm
$Ød_2$ = 250 - 315 mm => H +60 mm

Order code

Product	MBB	aaa	bbb	c
Type				
MBB				
Duct connection $Ød_1$				
Ø100-315				
Diffuser dimension $Ød_2$				
Ø160-315				
Functional use				
S = Supply air				
E = Exhaust				

Example: RS-14-V-S-0-200-1+MBB-200-200-S

Versio

RS14

Technical data

Capacity

Air flow q_v [l/s] and [m^3/h], total pressure Δp_t [Pa], throw $l_{0.2}$ [m] and sound power 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 $L_{WA}+K_{ok}$. K_{ok} values are specified in charts beneath the diagrams on the following pages.

Quick selection, supply air

RS14-V + MBB

RS14-V + MBB		$\Delta p_t \geq 50$ Pa		$\Delta p_t \geq 50$ Pa	
duct	RS14-V	30 dB(A)		35 dB(A)	
$Ød_1$	$Ød_2$	l/s	m^3/h	l/s	m^3/h
100	160	33	119	41	148
125	160	44	158	52	187
125	200	49	176	59	212
160	160	38	137	46	166
160	200	51	184	62	223
160	250	67	241	85	306
200	200	65	234	77	277
200	250	77	277	95	342
200	315	100	360	124	446
250	250	89	320	104	374
250	315	110	396	132	475
315	315	129	464	151	544

Supply air

RS14 + H

RS14 + H			$\Delta p_t \geq 50$ Pa		$\Delta p_t \geq 50$ Pa	
Size Ød	Minimum		30 dB(A)		35 dB(A)	
mm	l/s	m^3/h	l/s	m^3/h	l/s	m^3/h
125	26	93	28	101	34	122
160	33	118	53	191	63	227
200	57	204	65	234	80	288
250	71	254	89	320	107	385
315	95	342	-	-	148	533

Sound attenuation

Sound attenuation of the diffusers ΔL from duct to room, including end reflection - see tables below.

RS14-V + MBB

RS14-V + MBB		Centre frequency Hz							
duct	RS14-V								
$Ød_1$	$Ød_2$	63	125	250	500	1K	2K	4K	8K
100	160	20	16	5	19	20	19	18	21
125	160	16	13	9	20	18	18	19	20
125	200	14	12	6	17	16	16	18	19
160	160	17	16	10	24	20	20	21	21
160	200	15	15	7	22	21	19	20	21
160	250	15	14	5	20	16	16	17	19
200	200	14	11	7	18	21	17	20	18
200	250	13	9	5	17	18	16	18	17
200	315	13	8	3	15	17	15	17	16
250	250	15	8	7	18	18	18	18	19
250	315	15	7	6	16	16	17	17	18
315	315	8	11	8	16	18	17	17	22

RS14 + H

RS14 + H	Centre frequency Hz							
Size Ød								
mm	63	125	250	500	1K	2K	4K	8K
125	18	13	8	18	14	11	12	14
160	17	13	3	14	13	7	7	8
200	15	10	3	13	9	6	8	10
250	12	9	6	11	8	7	10	12
315	12	7	7	13	8	7	10	12

RS14 + R

RS14 + R	Mean frequency Hz							
Size-2								
mm	63	125	250	500	1K	2K	4K	8K
200x100	19	14	9	6	5	3	3	4
300x100	16	11	5	5	6	5	3	4
400x100	13	8	2	3	4	5	4	5
500x100	12	7	2	4	2	5	5	5

Installation -and balancing instruction

For futher information go to www.lindQST.com and installation -and balancing instruction.

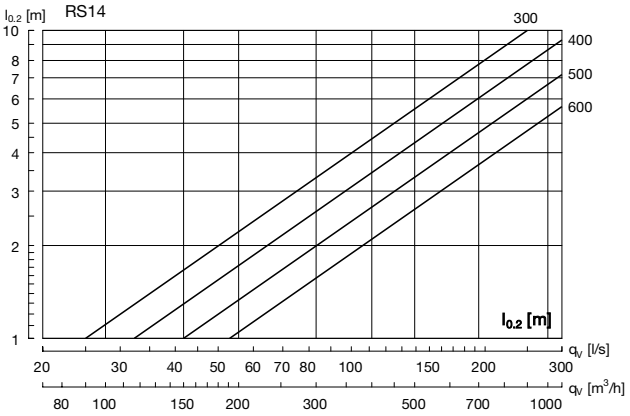
Versio

RS14

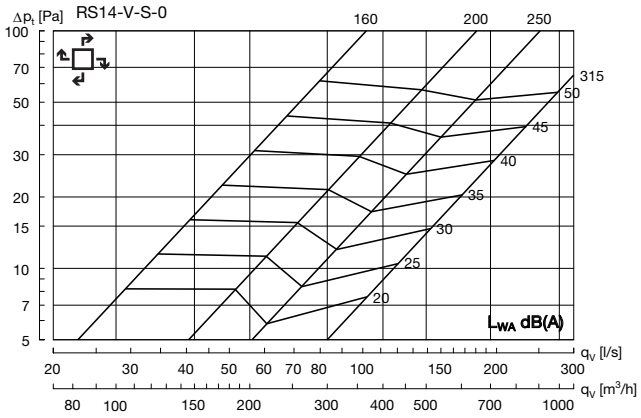
Technical data

Throw $l_{0.2}$

Throw $l_{0.2}$ [m] is specified at a terminal velocity of 0.2 m/s. The designation by the lines specifies the pattern of dispersal.



RS14-V without plenum box – Supply air

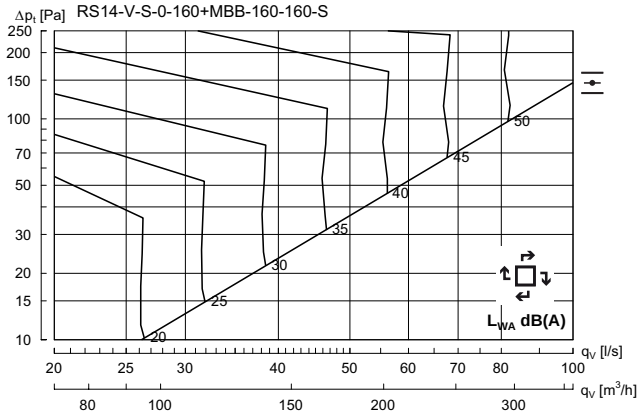


Versio

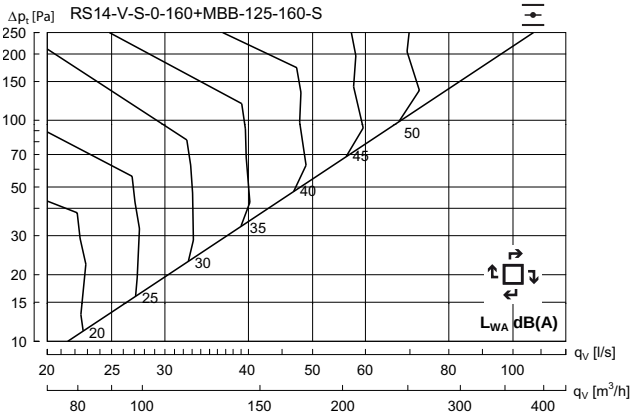
RS14

Technical data

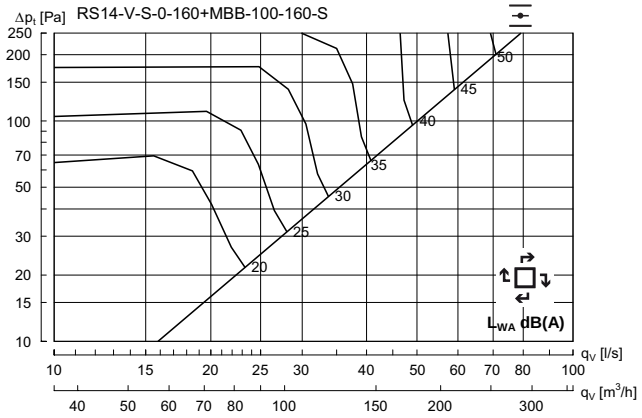
RS14-V 160 + MBB - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	8	2	-1	1	-7	-17	-26	-36

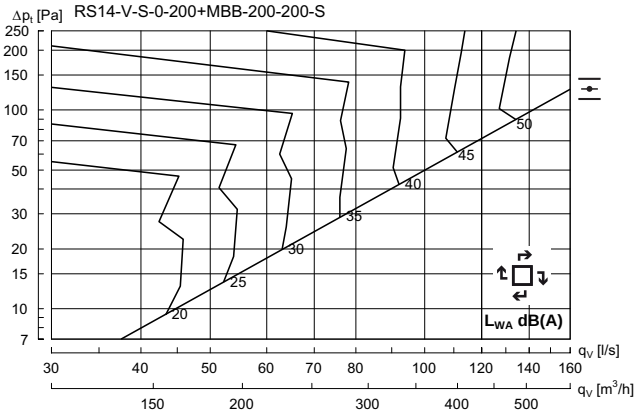


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	10	4	-1	1	-7	-17	-24	-29

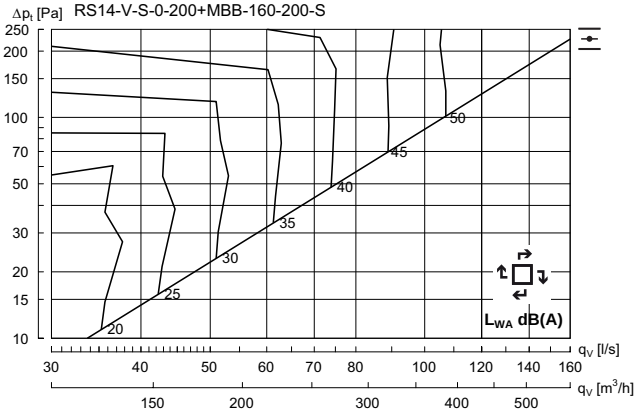


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	10	4	2	-1	-7	-13	-18	-22

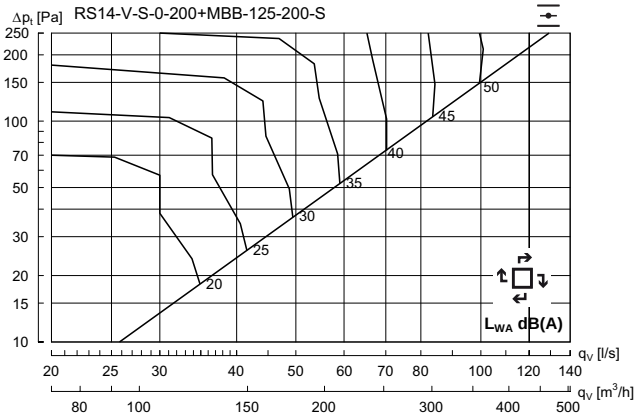
RS14-V 200 + MBB - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	11	0	-5	0	-4	-15	-26	-36



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	11	2	-1	0	-6	-15	-24	-33



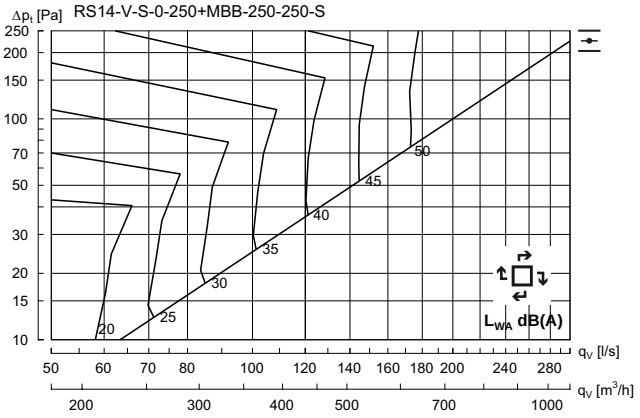
Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	10	4	2	-1	-7	-13	-18	-22

Versio

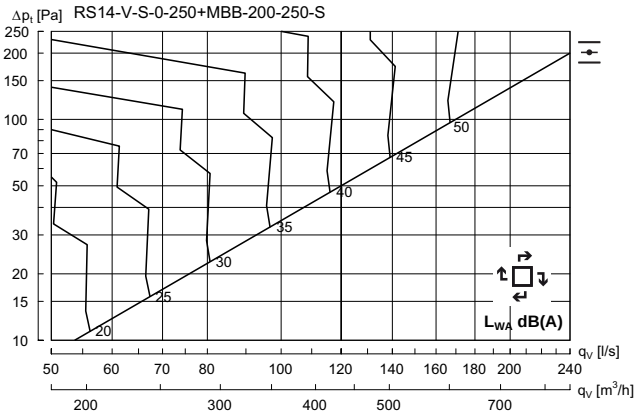
RS14

Technical data

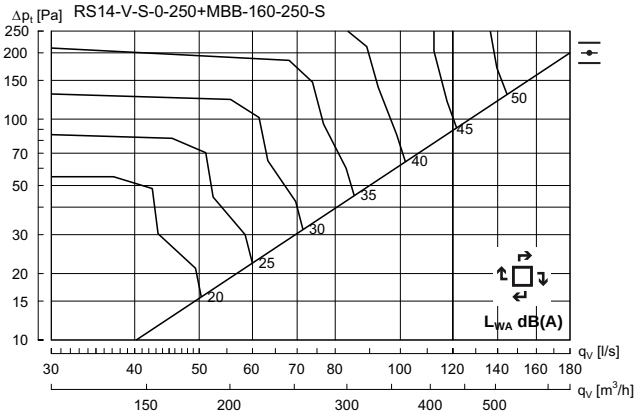
RS14-V 250 + MBB - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	8	-1	-6	1	-5	-18	-29	-40

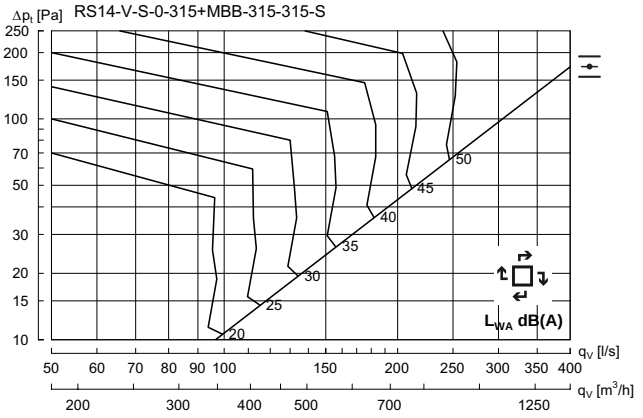


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	9	2	-3	0	-5	-17	-26	-29

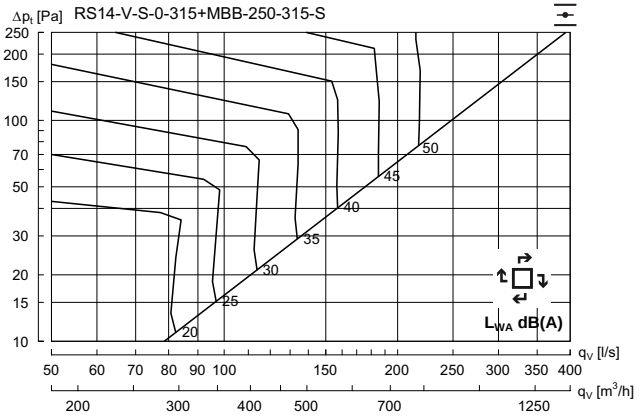


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	13	5	-1	-1	-5	-14	-20	-26

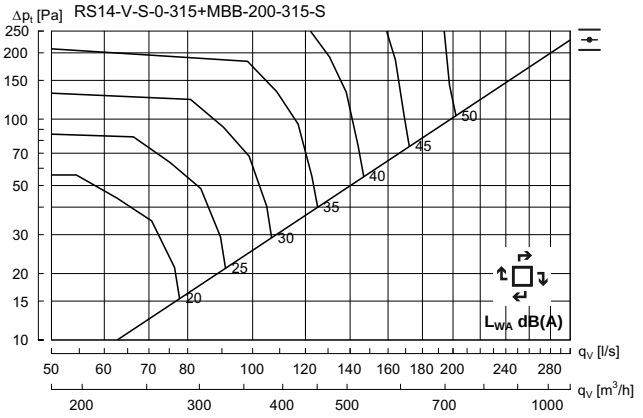
RS14-V 315 + MBB - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	11	-1	-3	0	-5	-17	-25	-28



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	12	2	-3	0	-5	-15	-22	-30



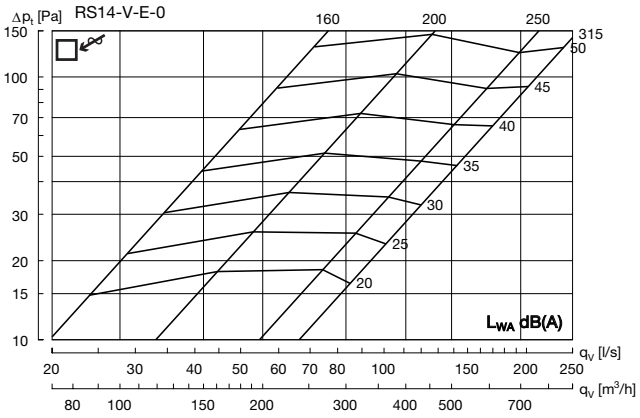
Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	13	4	-1	-1	-6	-14	-19	-25

Versio

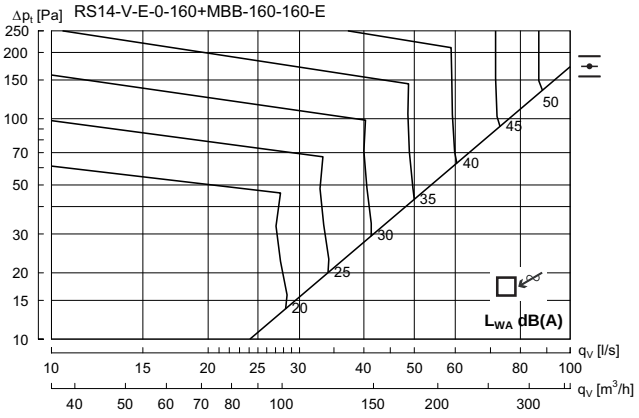
RS14

Technical data

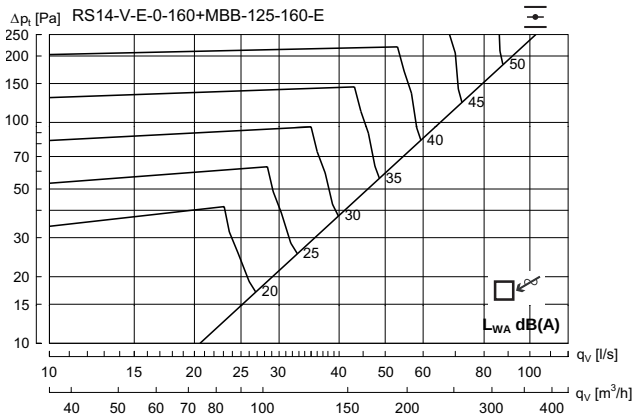
RS14-V without plenum box – Exhaust air



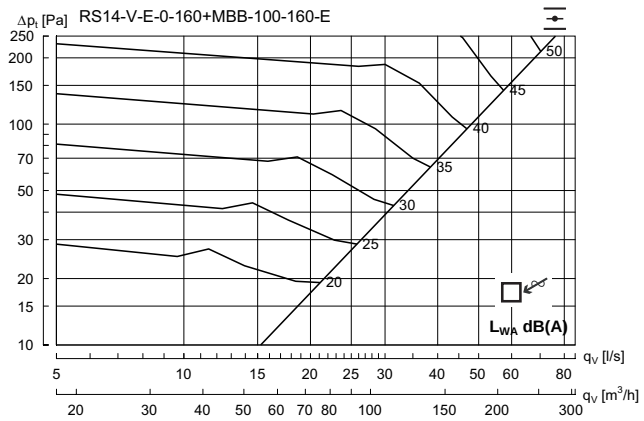
RS14-V 160 + MBB - Exhaust air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	12	2	-1	-1	-5	-13	-22	-31



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	11	4	-1	-1	-5	-13	-19	-27



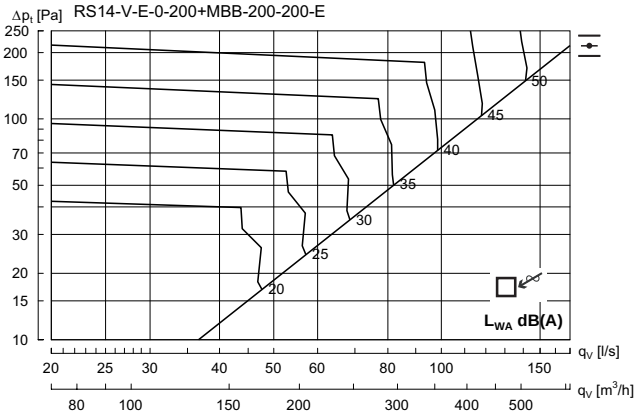
Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	11	4	4	-2	-9	-13	-17	-23

Versio

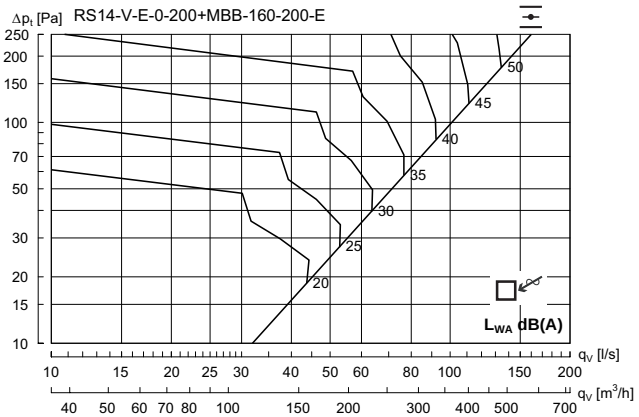
RS14

Technical data

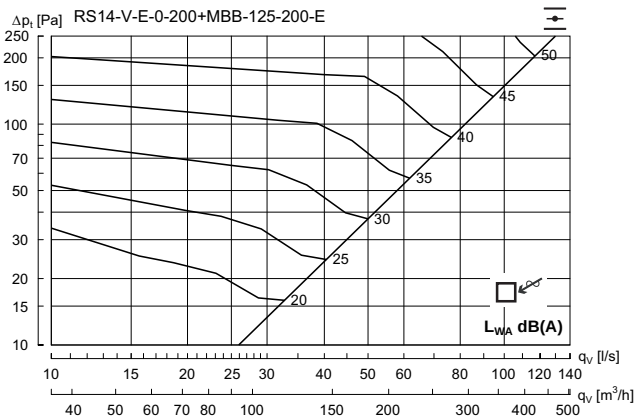
RS14-V 200 + MBB - Exhaust air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	13	4	-1	-1	-5	-12	-20	-28

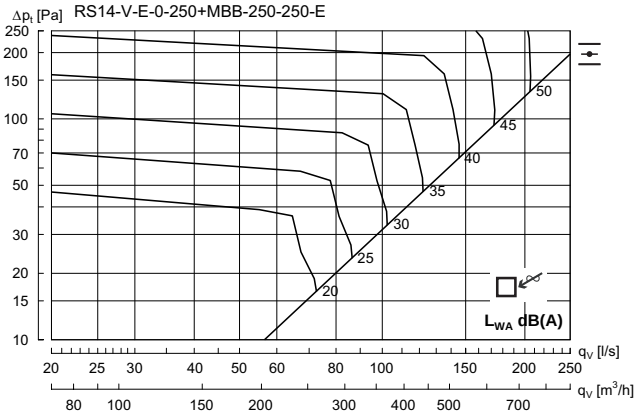


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	16	6	0	-2	-6	-12	-18	-25

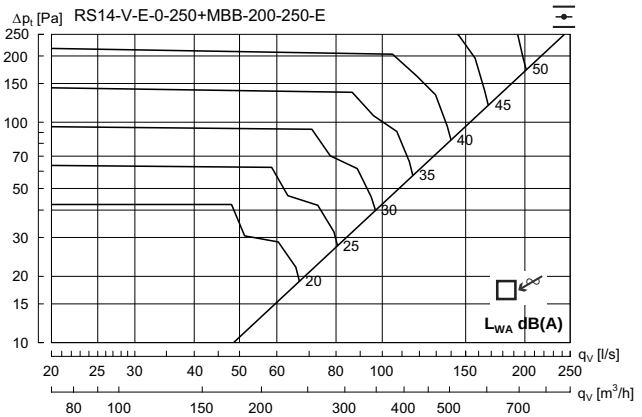


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	11	4	2	-1	-7	-12	-16	-23

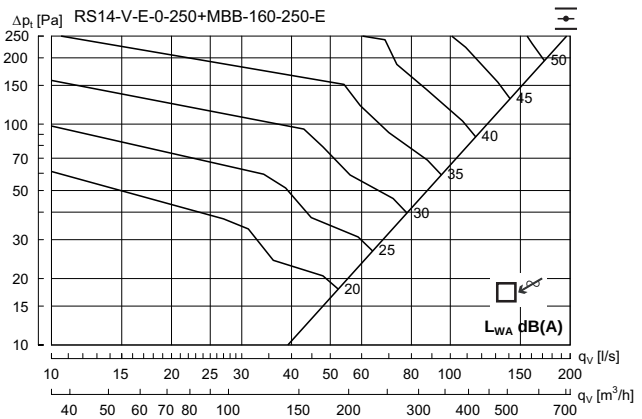
RS14-V 250 + MBB - Exhaust air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	8	5	0	-1	-5	-11	-20	-28



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	14	5	1	-2	-5	-11	-19	-26



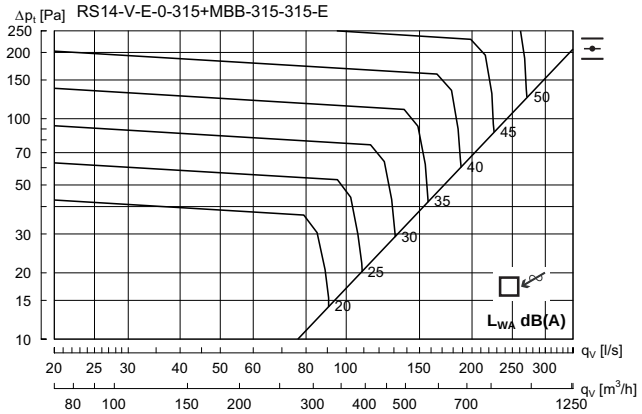
Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	15	7	1	-2	-7	-11	-17	-22

Versio

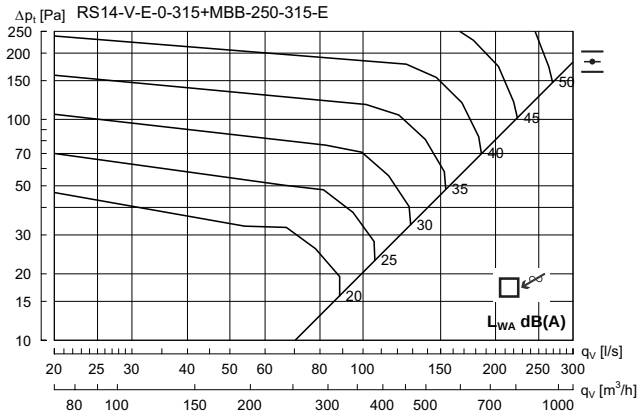
RS14

Technical data

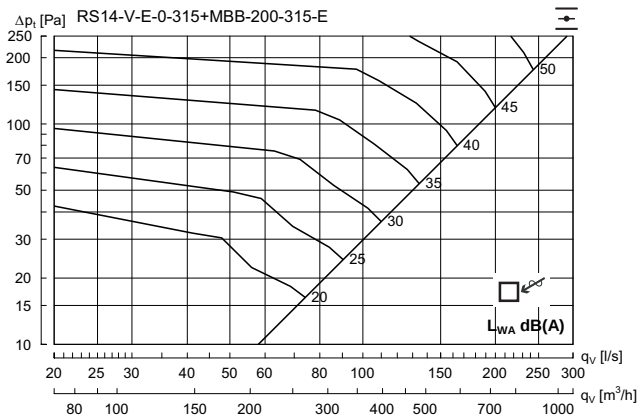
RS14-V 315 + MBB - Exhaust air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	11	4	1	-2	-5	-13	-22	-32



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	10	6	2	-2	-5	-12	-19	-27



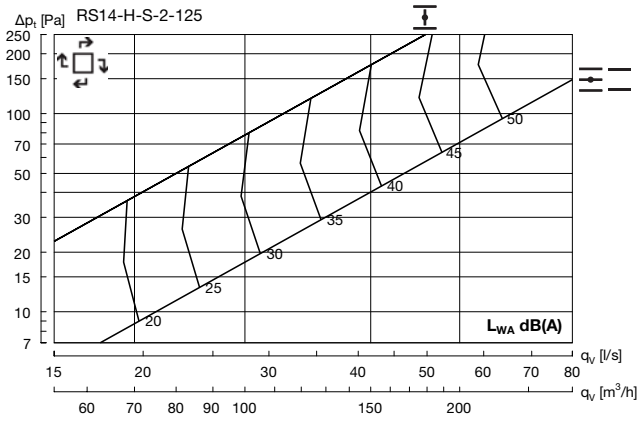
Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	14	5	2	-2	-6	-11	-16	-24

Versio

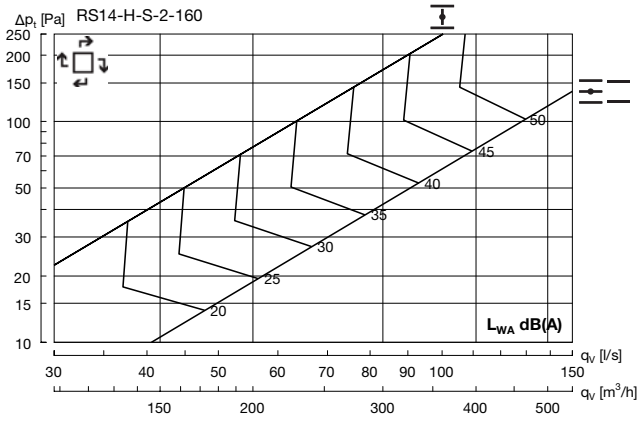
RS14

Technical data

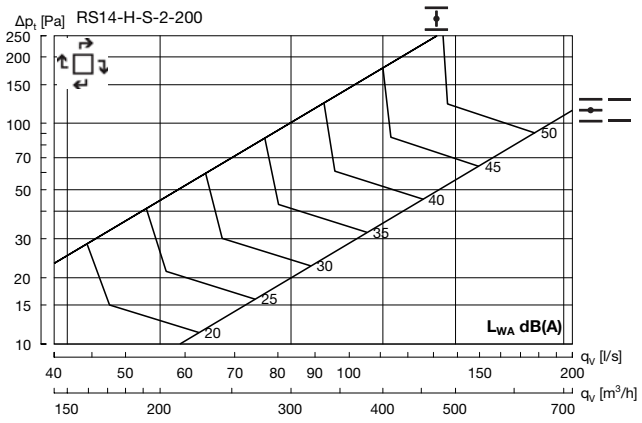
RS14 + H - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	14	8	5	-3	-10	-17	-23	-28

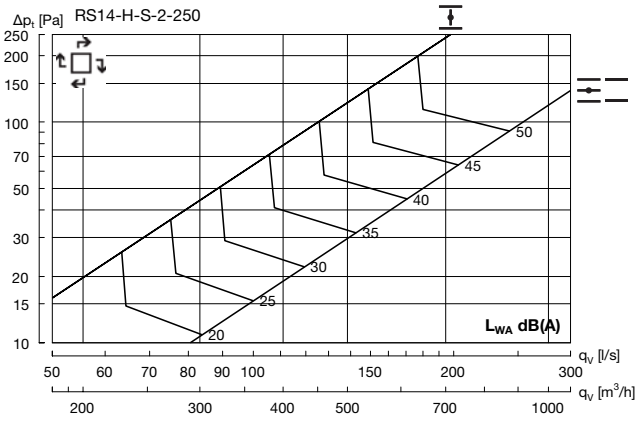


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	2	5	5	-3	-7	-14	-20	-26

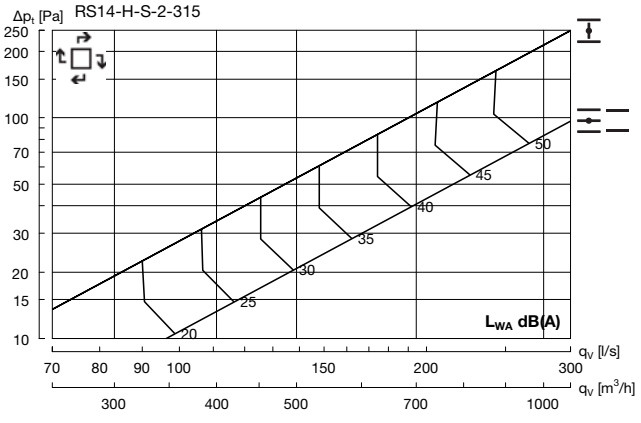


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	10	7	2	-2	-6	-14	-21	-29

RS14 + H - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	5	7	3	-1	-7	-16	-23	-31



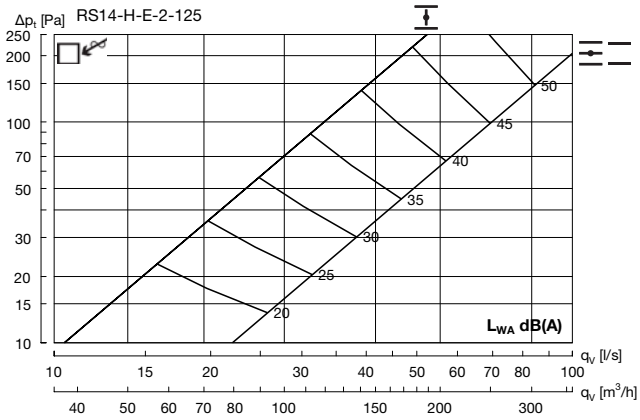
Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	7	7	2	-1	-7	-16	-25	-35

Versio

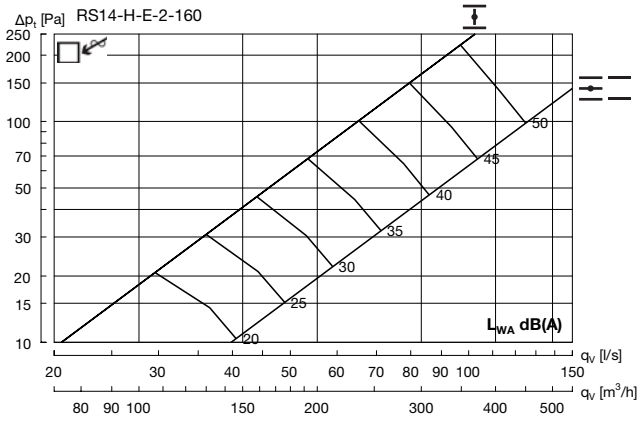
RS14

Technical data

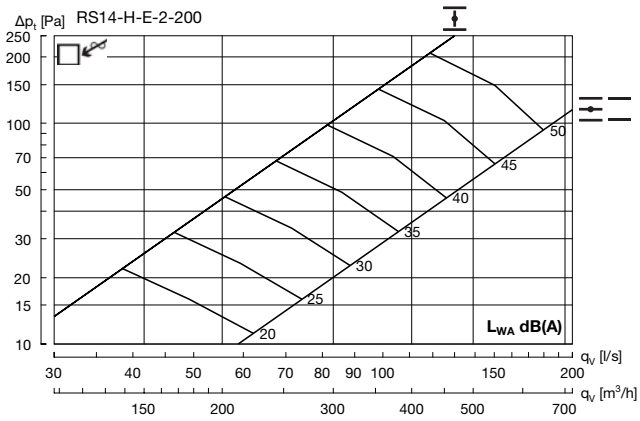
RS14 + H - Exhaust air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	3	7	3	-1	-8	-14	-19	-26

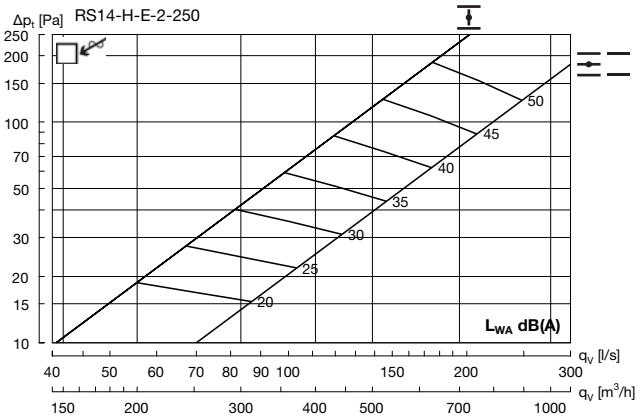


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	2	6	5	-3	-8	-14	-22	-31

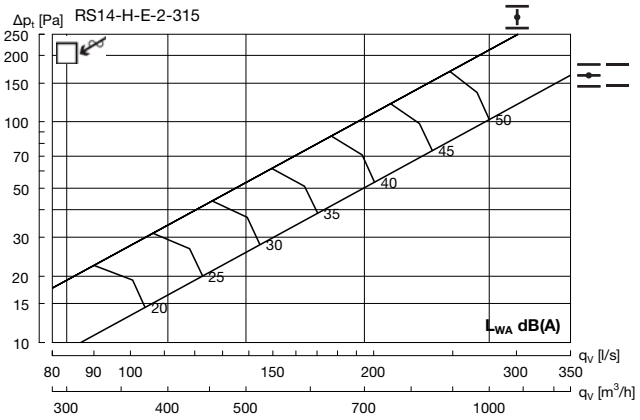


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	7	7	4	-3	-7	-13	-20	-25

RS14 + H - Exhaust air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	5	7	3	-2	-7	-13	-21	-31

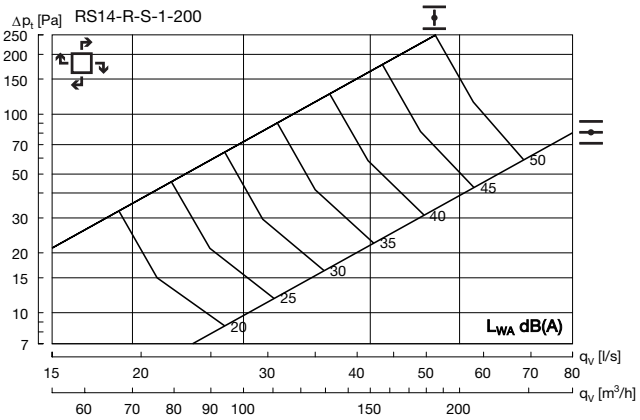


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	7	7	2	-2	-6	-14	-24	-35

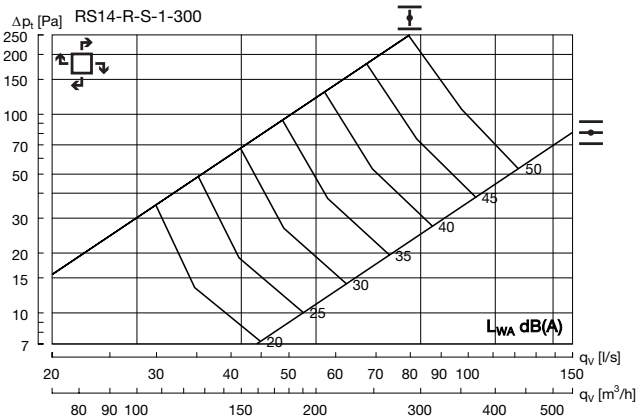
Versio RS14

Technical data

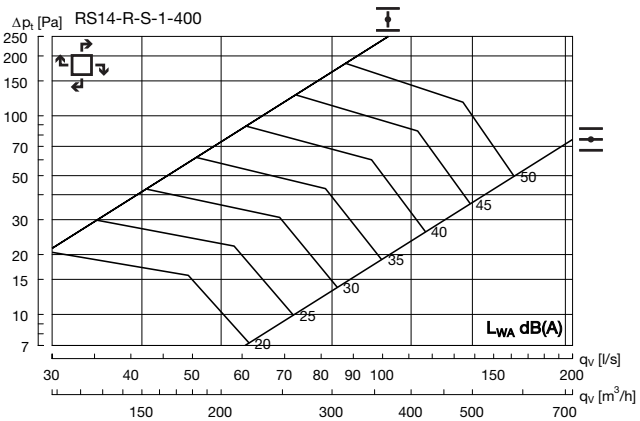
RS14 + R - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	6	-1	3	-1	-7	-12	-25	-33

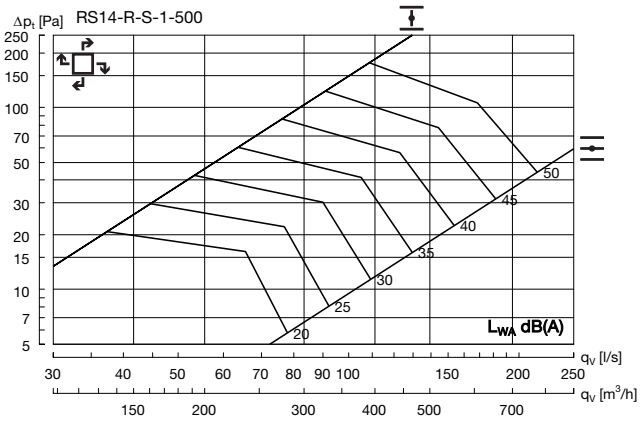


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	7	-1	4	-1	-8	-14	-22	-31



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	-2	-1	3	-1	-6	-11	-20	-32

RS14 + R - Supply air



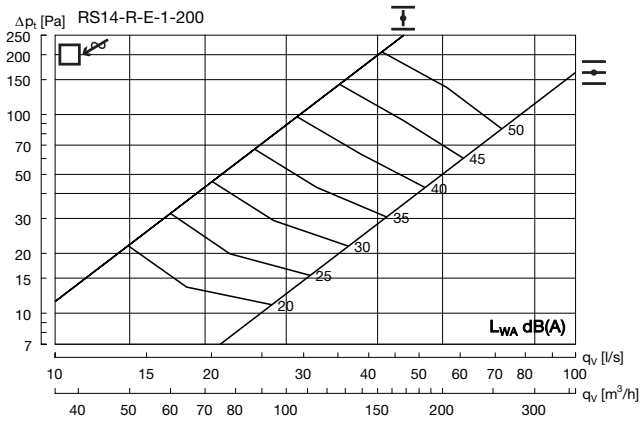
Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	3	-1	3	-1	-7	-11	-19	-31

Versio

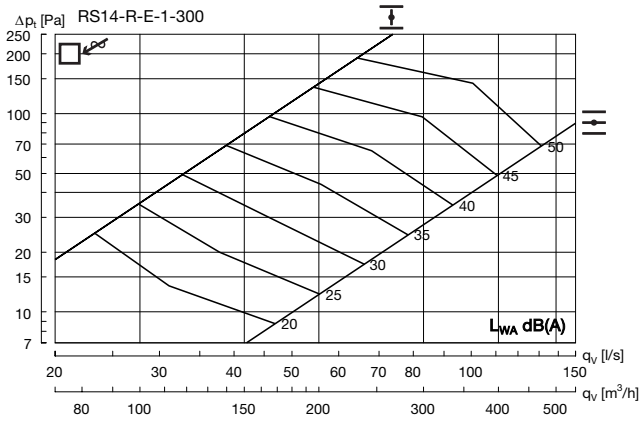
RS14

Technical data

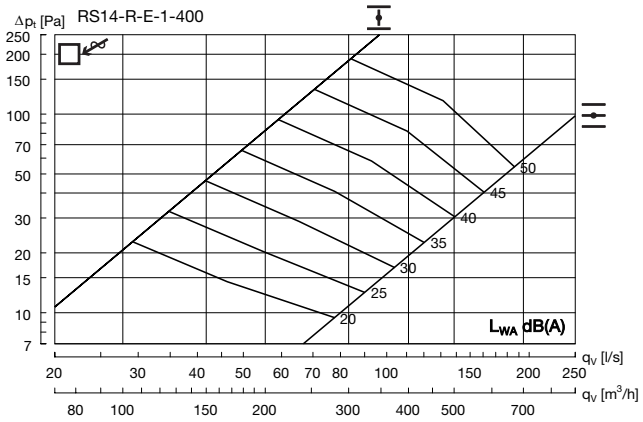
RS14 + R - Exhaust air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	7	-1	4	-2	-8	-10	-18	-25

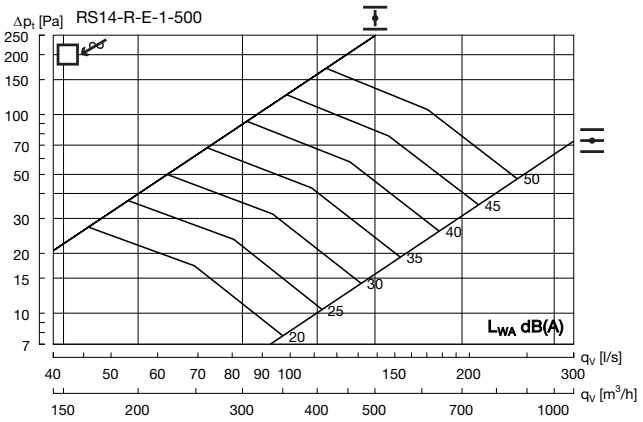


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	6	1	4	-2	-7	-10	-17	-25



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	2	0	2	-2	-5	-10	-16	-24

RS14 + R - Exhaust air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	1	1	1	-2	-6	-9	-16	-25

Versio

RS15

RS15 with grille box type V

RS15 with plenum box type H

Description

RS15 is a square swirl diffuser with adjustable bars that can be used for both supply and exhaust air. The swirl pattern ensures high induction and a large dynamic range. It is therefore ideal for the horizontal supply of very cold air. The diffuser can also be set to a vertical supply air pattern, enabling supply of heated air. The diffuser is supplied as standard with inward swirl. For exhaust, the diffuser is supplied as standard without bars

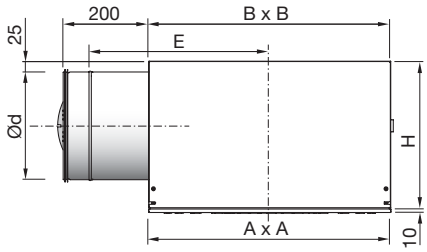
- Large dynamic range
- High induction
- Ideal for the supply of very cold air
- Adjustable for horizontal or vertical supply air pattern
- Can be used for both supply air and exhaust

Order code

Product		**RS 15 b c d eee f**
Type		
RS		
Design		
15		
Box type		
V - H - R		
Functional use		
S = Supply air		
E = Exhaust		
Damper		
0 = No damper	(Box	: H, V)
1 = Damper	(Box	: H, R)
2 = Damper / Meas.outlets	(Box	: H)
Connection dim.		
Ø200-315	(Box	: V)
Ø160-315	(Box	: H)
300x100 - 500x100	(Box	: R)
Ceiling system		
1 - 14	Go to chapter Ceiling tile adaption	

Example: RS-15-V-S-0-200-1

Dimensions



RS15-H Ød	Pattern	A mm	B mm	H mm	E mm	Weight kg
160	400	*-	380	250	350	5.9
200	500	*-	460	290	390	8.5
250	600	*-	560	340	420	12.3
315	600	*-	560	405	420	13.1

* Face plate dimension A x A depends on ceiling system. See **"Ceiling adjustment"** for detailed dimensions. For further details on plenum box - see **"Plenum boxes"**.

Maintenance

The face plate can be removed to enable cleaning of internal parts or to gain access to the duct or box. The visible parts of the diffuser can be wiped with a damp cloth.

Materials and finish

Grille box/plenum box:

Material: Galvanised steel

Face plate:

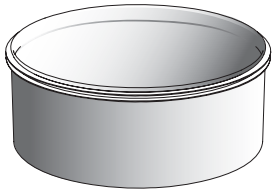
Material: Galvanised steel
Bars: Black ABS-plastic
Standard finish: Powder-coated
Standard colour: RAL 9010, gloss 30

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

Versio RS15

Accessories

Extension piece MBZ



Order code

Product	MBZ	aaa
Type		
Size		

Example: MBZ-200

Mounting bracket PBB

Suspension MHS

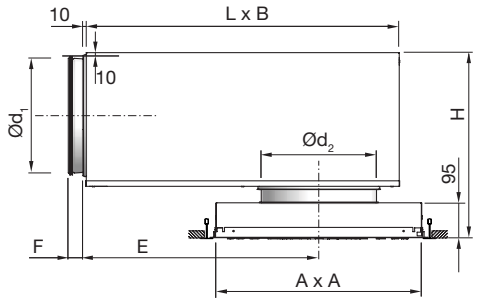
Order code

Product	aaa
Type	

Example: MHS

Plenum box MBB

RS15-V + MBB



RS15-V + MBB duct Ød1 mm	RS15-V Ød2 mm	Pattern	B mm	E mm	F mm	H* mm	L mm
125	200	400	310	262	50	280 - 320	376
160	200	400	380	323	50	314 - 354	459
160	250	500	380	323	50	314 - 354	459
200	200	400	460	396	70	355 - 395	565
200	250	500	460	396	70	355 - 395	565
200	315	600	460	396	70	355 - 395	565
250	250	500	540	486	70	405 - 445	698
250	315	600	540	486	70	405 - 445	698
315	315	600	540	646	70	470 - 510	858

* Using accessory MBZ the H dimension will increase:
$Ød_2$ = 200 mm => H +40 mm
$Ød_2$ = 250 - 315 mm => H +60 mm

Order code

Product	MBB	aaa	bbb	c
Type				
MBB				
Duct connection $Ød_1$				
Ø125-315				
Diffuser dimension $Ød_2$				
Ø200-315				
Functional use				
S = Supply air				
E = Exhaust				

Example: RS-15-V-S-200-1+MBB-200-200-S

Versio

RS15

Technical data

Capacity

Air flow q_v [l/s] and [m^3/h], total pressure Δp_t [Pa], throw $l_{0.2}$ [m] and sound power 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 $L_{WA}+K_{ok}$. K_{ok} values are specified in charts beneath the diagrams on the following pages.

Quick selection, supply air

RS15-V + MBB

RS15-V + MBB		$\Delta p_t \geq 50$ Pa		$\Delta p_t \geq 50$ Pa	
duct	RS15-V	30 dB(A)		35 dB(A)	
$Ød_1$	$Ød_2$	l/s	m^3/h	l/s	m^3/h
125	200	53	191	63	227
160	200	56	202	67	241
160	250	72	259	91	328
200	200	60	216	73	263
200	250	84	302	102	367
200	315	94	338	119	428
250	250	94	338	112	403
250	315	107	385	128	461
315	315	123	443	144	518

Supply air

RS15 + H

RS15 + H			$\Delta p_t \geq 50$ Pa		$\Delta p_t \geq 50$ Pa	
Size Ød	Minimum		30 dB(A)		35 dB(A)	
mm	l/s	m^3/h	l/s	m^3/h	l/s	m^3/h
160	33	118	53	191	63	227
200	57	204	65	234	80	288
250	71	254	89	320	107	385
315	95	342	-	-	148	533

Sound attenuation

Sound attenuation of the diffusers ΔL from duct to room, including end reflection - see table below.

RS15-V + MBB

RS15-V + MBB		Centre frequency Hz							
duct	RS15-V								
$Ød_1$	$Ød_2$	63	125	250	500	1K	2K	4K	8K
125	200	14	13	6	16	18	17	18	19
160	200	15	15	8	22	21	20	20	20
160	250	15	14	4	20	17	18	18	20
200	200	14	11	8	17	21	18	21	18
200	250	14	9	5	17	18	16	18	17
200	315	12	9	4	16	17	16	17	16
250	250	15	9	8	19	19	18	18	18
250	315	16	7	5	15	16	17	17	18
315	315	10	10	8	16	18	17	17	23

RS15 + H

RS15 + H	Centre frequency Hz							
Size Ød								
mm	63	125	250	500	1K	2K	4K	8K
160	17	12	5	15	14	10	9	9
200	14	8	4	13	10	7	8	11
250	12	8	6	9	7	7	8	10
315	12	6	7	12	6	6	8	10

RS15 + R

RS15 + R	Mean frequency Hz							
Size-2								
mm	63	125	250	500	1K	2K	4K	8K
300x100	16	11	5	5	6	5	3	4
400x100	13	8	2	3	4	5	4	5
500x100	12	7	2	4	2	5	5	5

Installation -and balancing instruction

For futher information go to www.lindQST.com and installation -and balancing instruction.

Versio

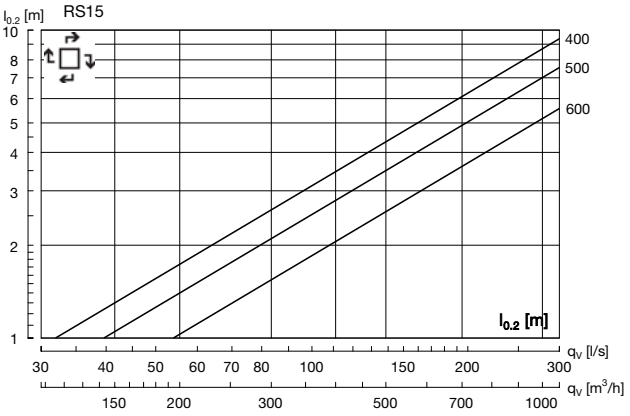
RS15

Technical data

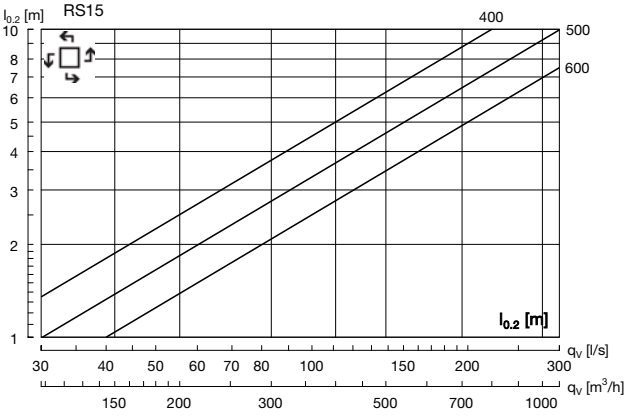
Throw $l_{0.2}$

Throw $l_{0.2}$ [m] is specified at a terminal velocity of 0.2 m/s. The designation by the lines specifies the pattern of dispersal.

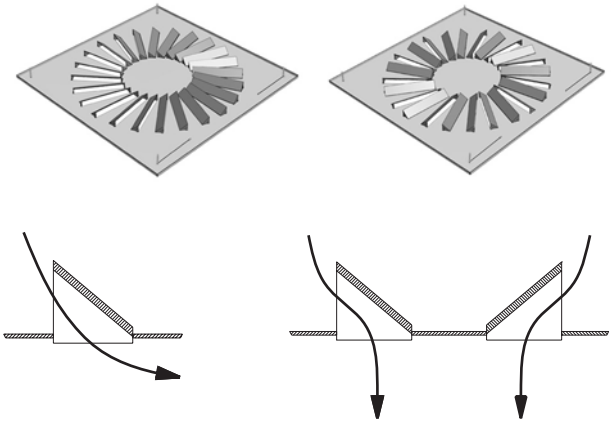
Inward swirl



Outward swirl

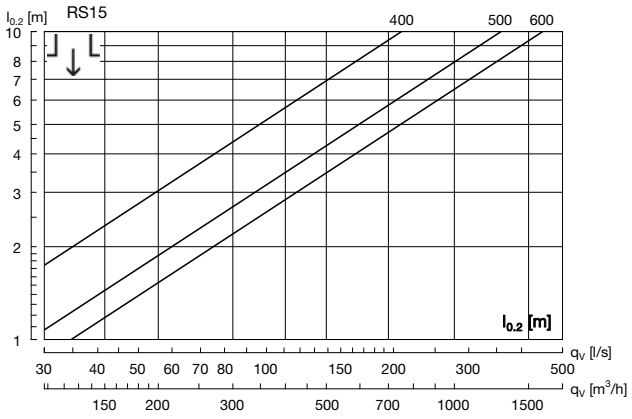


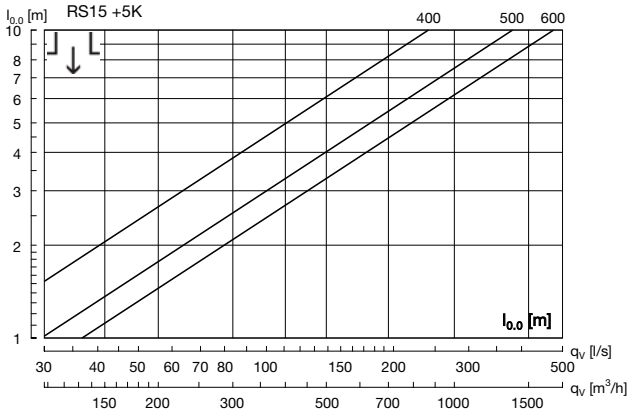
Horizontal and vertical bars

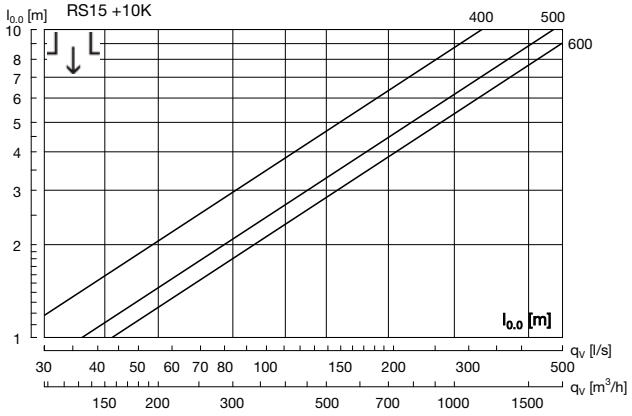


Throws/turning points

Throw $l_{0.2}$ [m] can be seen in the diagram. The throw applies for isothermal air at a terminal velocity of 0.2 m/s. Turning point $l_{0.0}$ (m) can be seen in the diagram for heated air, +5 K and +10 K respectively.
The designation by the lines specifies the pattern of dispersal.





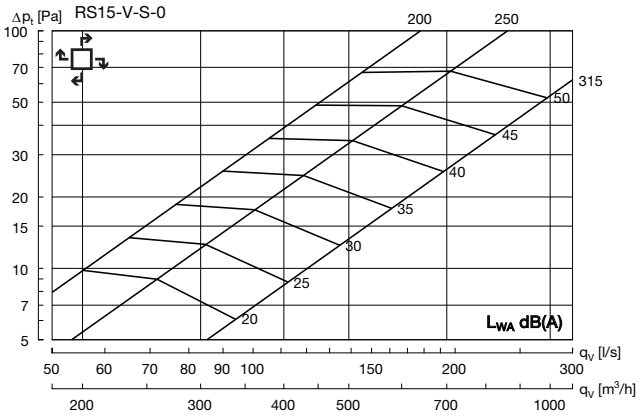


Versio

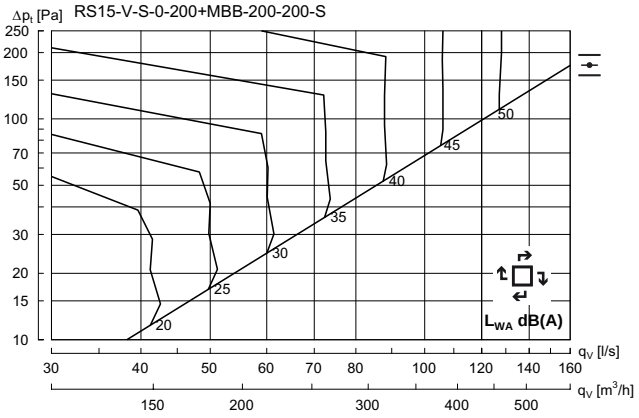
RS15

Technical data

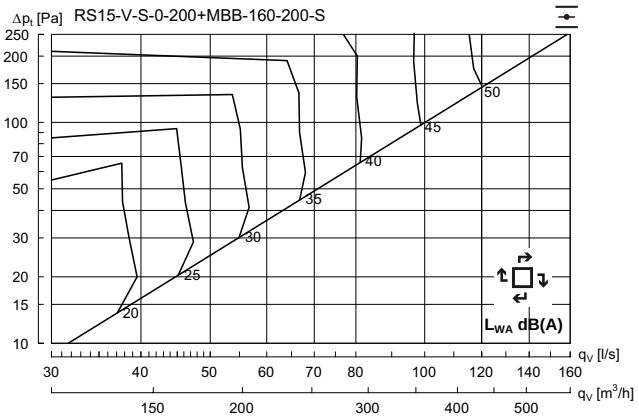
RS15-V without plenum box - Supply air



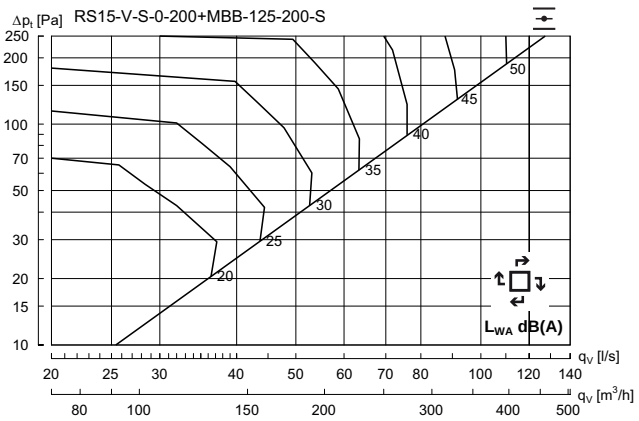
RS15-V 200 + MBB - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	13	2	-4	0	-5	-14	-21	-29



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	11	4	-2	-1	-5	-13	-19	-27



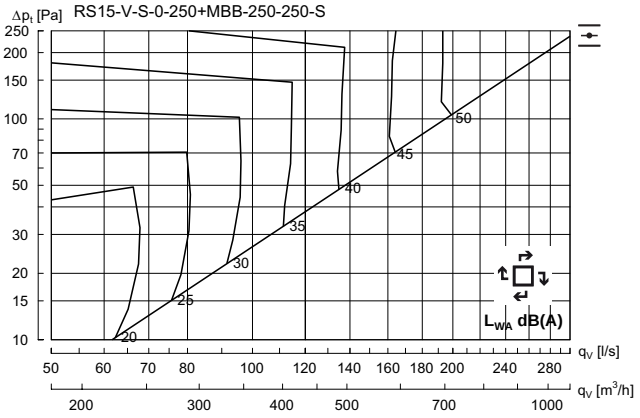
Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	12	5	1	-1	-6	-11	-16	-22

Versio

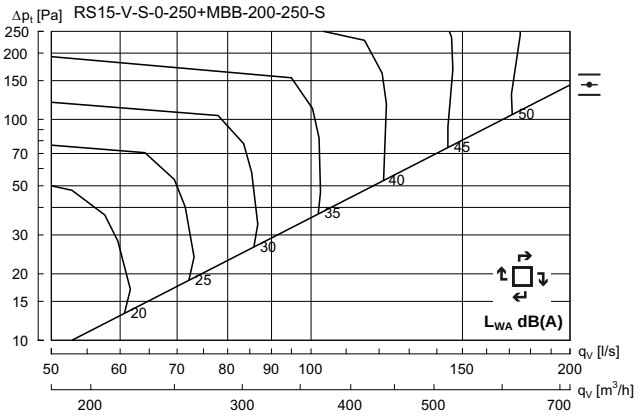
RS15

Technical data

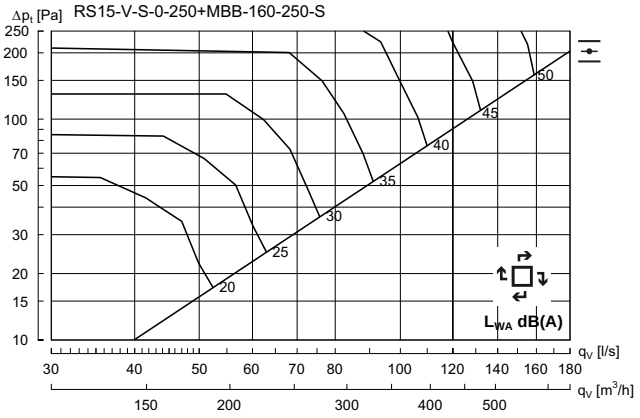
RS15-V 250 + MBB - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	10	2	-3	0	-5	-14	-20	-30

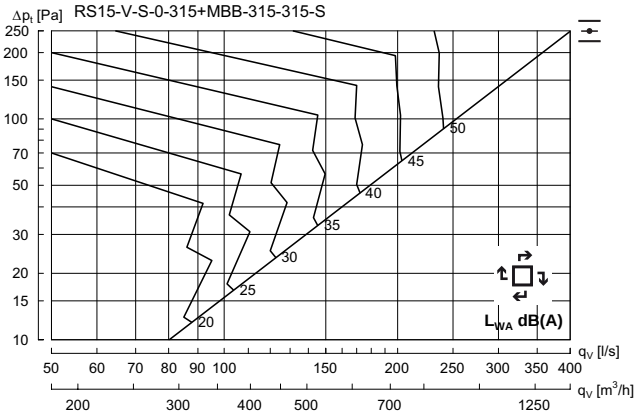


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	11	4	-1	0	-7	-14	-22	-30

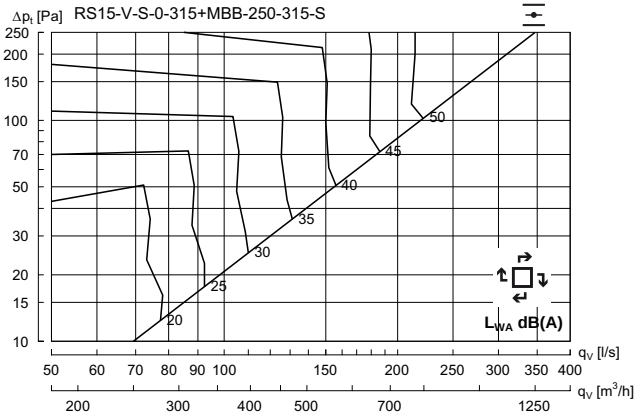


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	12	4	0	-2	-5	-11	-18	-24

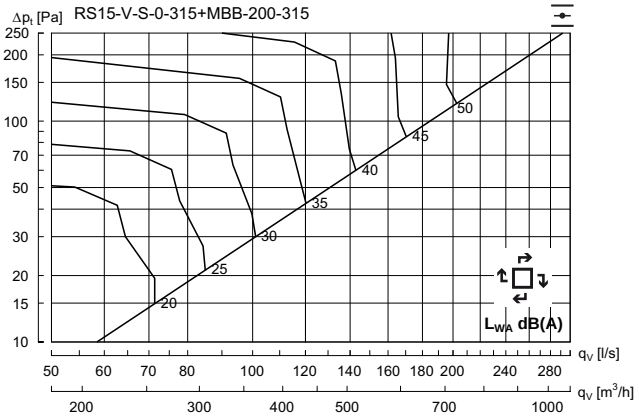
RS15-V 315 + MBB - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	9	3	0	0	-6	-13	-20	-30



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	10	4	-1	-1	-5	-13	-19	-28



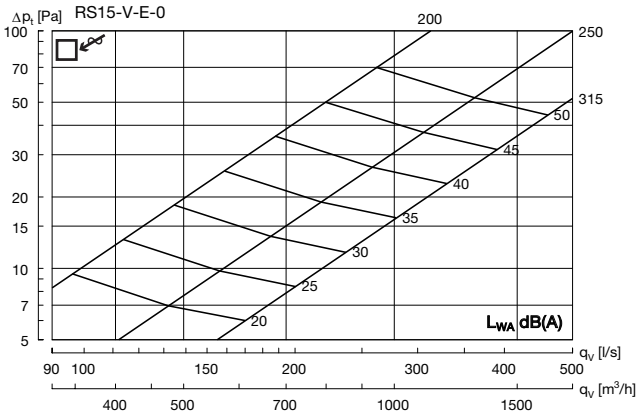
Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	10	6	0	-1	-6	-12	-18	-27

Versio

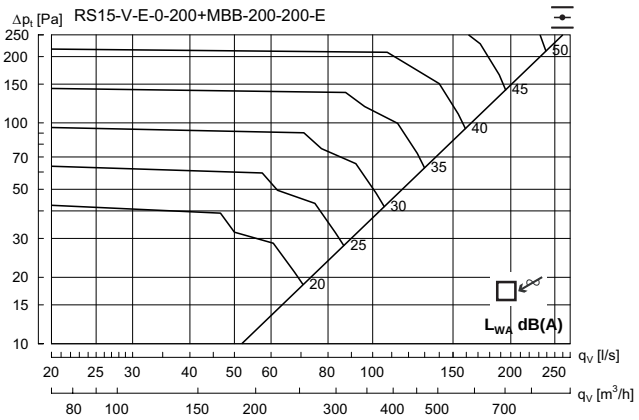
RS15

Technical data

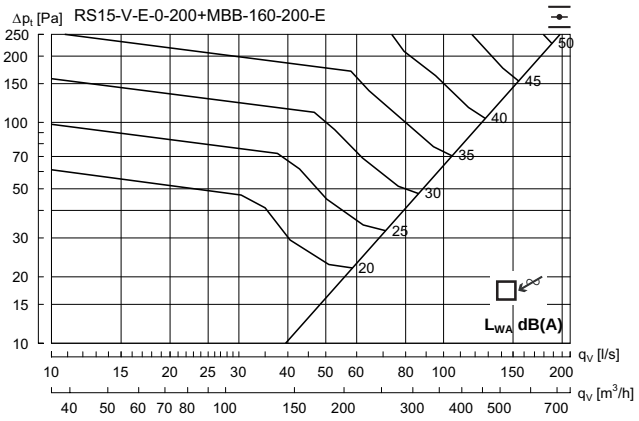
RS15-V without plenum box - Exhaust air



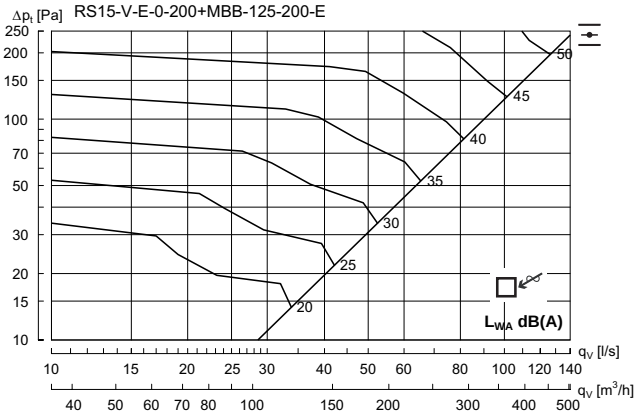
RS15-V 200 + MBB - Exhaust air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	14	5	1	-3	-6	-10	-15	-23



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	14	6	0	-2	-7	-9	-15	-19



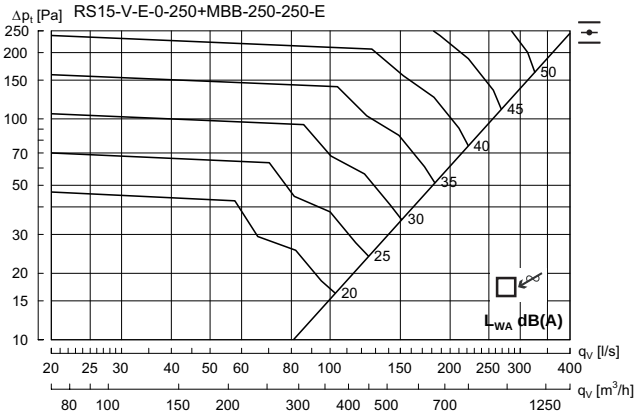
Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	13	4	1	-1	-7	-11	-15	-22

Versio

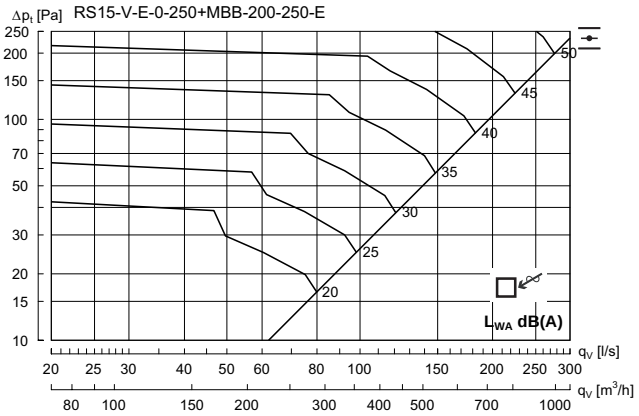
RS15

Technical data

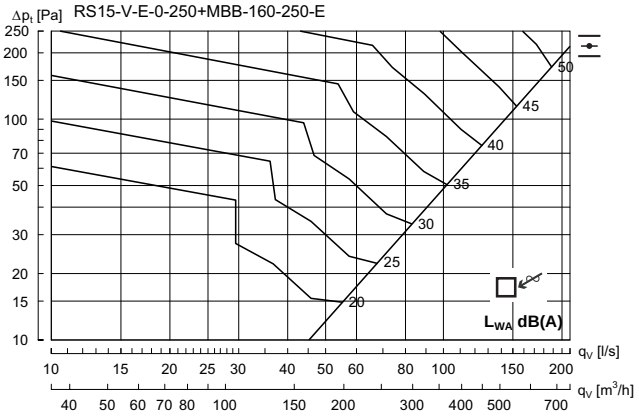
RS15-V 250 + MBB - Exhaust air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	10	6	3	-4	-6	-10	-16	-24

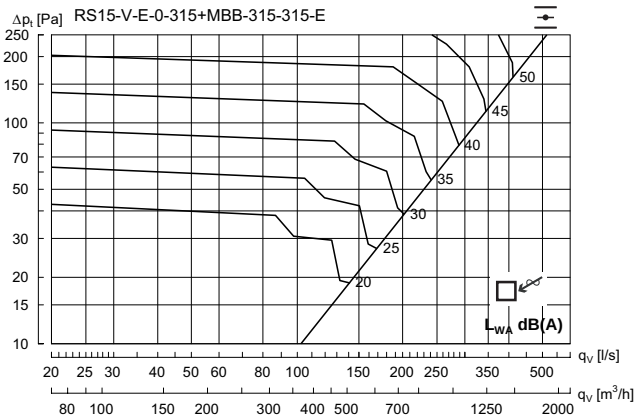


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	14	5	1	-3	-6	-10	-13	-21

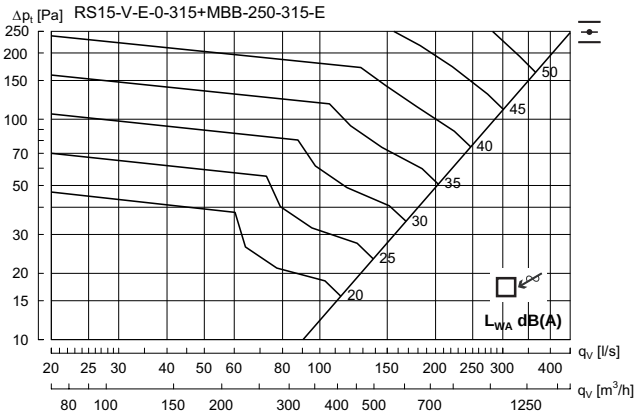


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	15	7	1	-3	-6	-10	-16	-19

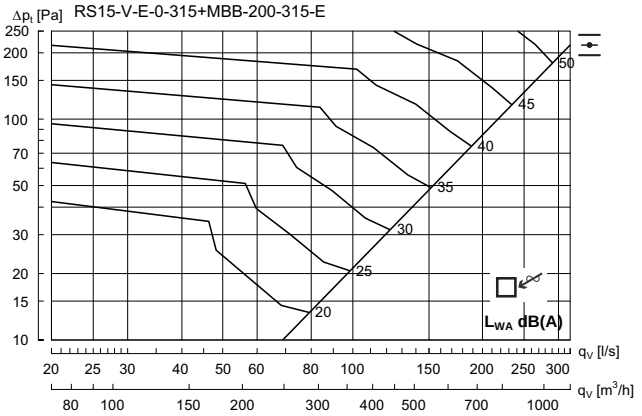
RS15-V 315 + MBB - Exhaust air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	12	6	3	-3	-6	-11	-16	-26



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	11	6	2	-4	-6	-10	-16	-23



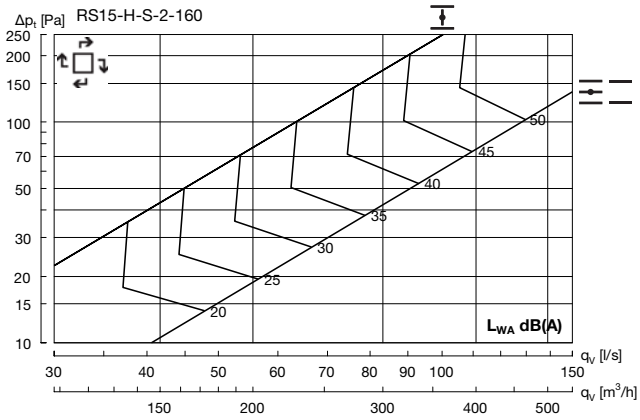
Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	14	5	1	-3	-6	-10	-14	-22

Versio

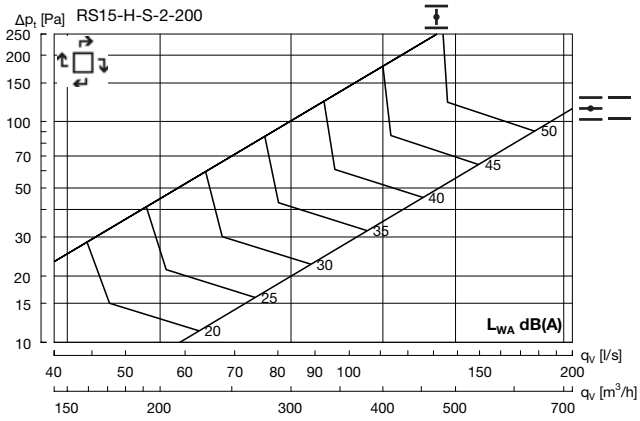
RS15

Technical data

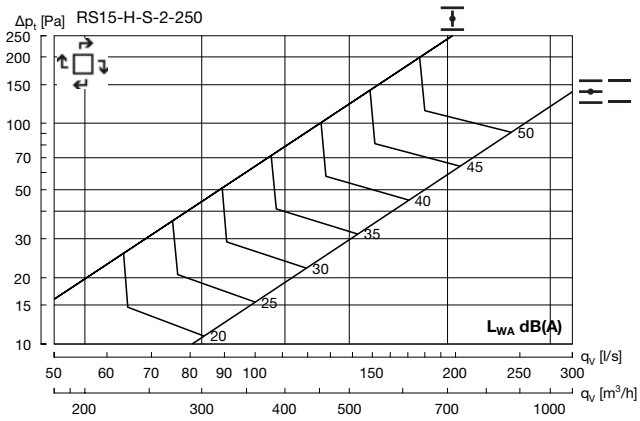
RS15 + H - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	2	5	5	-3	-7	-14	-20	-26

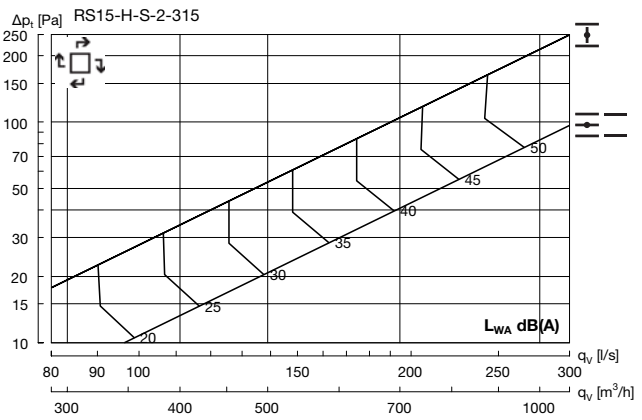


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	10	7	2	-2	-6	-14	-21	-29



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	5	7	3	-1	-7	-16	-23	-31

RS15 + H - Supply air

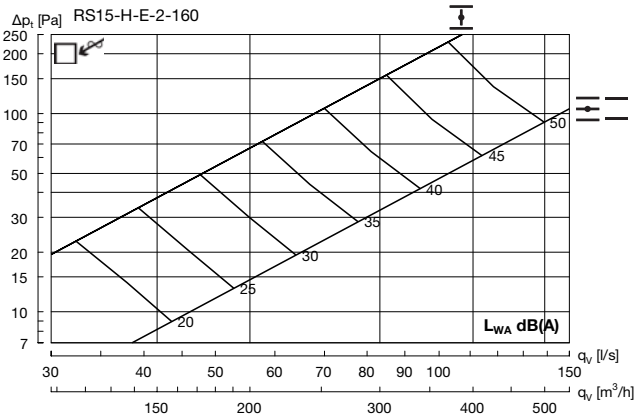


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	7	7	2	-1	-7	-16	-25	-35

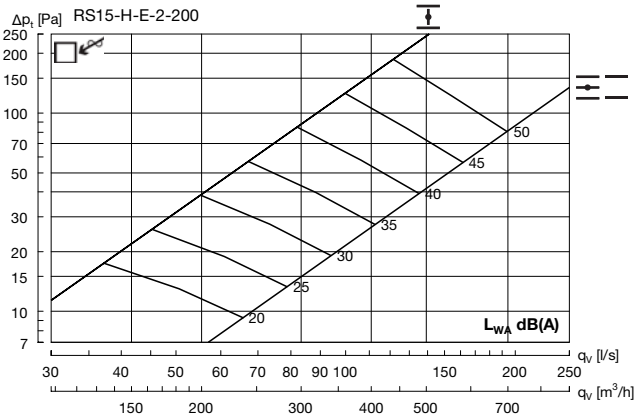
Versio RS15

Technical data

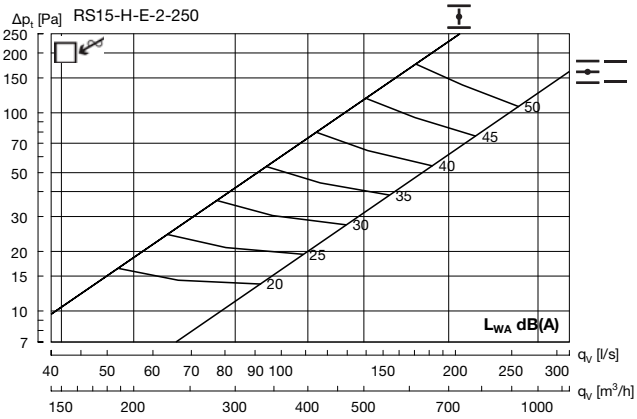
RS15 + H - Exhaust air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	9	7	6	-4	-10	-13	-22	-31

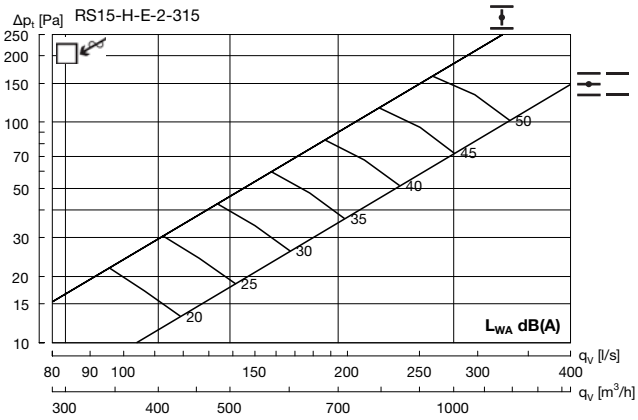


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	6	9	4	-4	-8	-12	-19	-29



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	6	7	2	-2	-6	-13	-22	-31

RS15 + H - Exhaust air



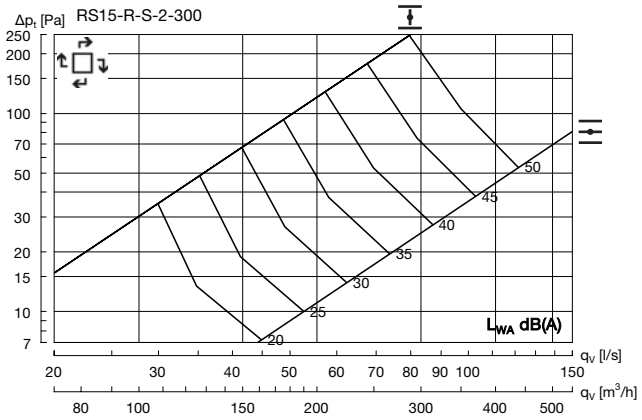
Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	7	6	2	-2	-5	-12	-24	-33

Versio

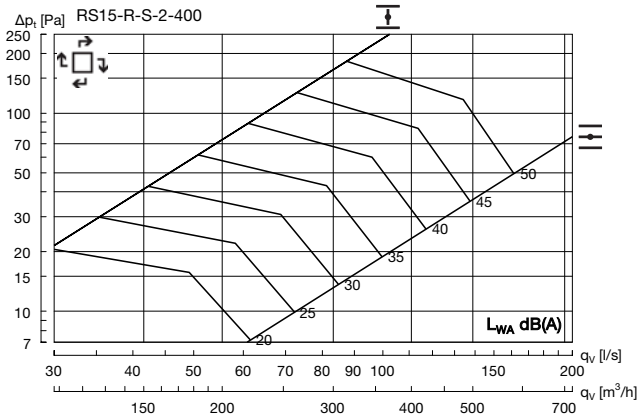
RS15

Technical data

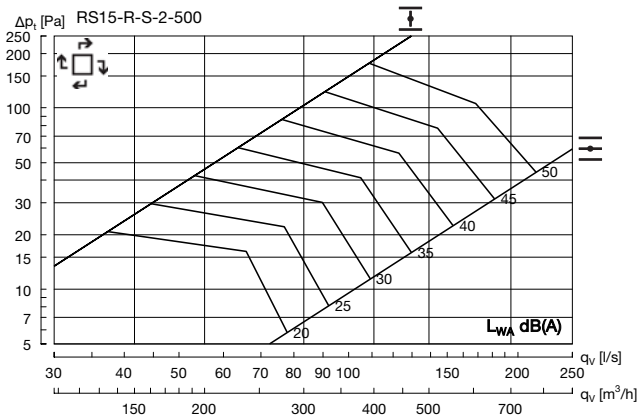
RS15 + R - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	7	-1	4	-1	-8	-14	-22	-31

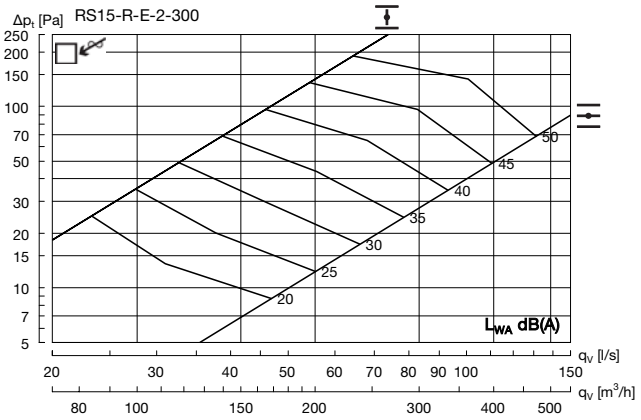


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	-2	-1	3	-1	-6	-11	-20	-32

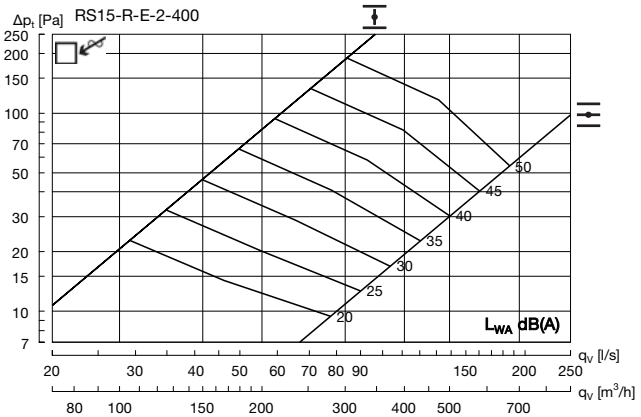


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	3	-1	3	-1	-7	-11	-19	-31

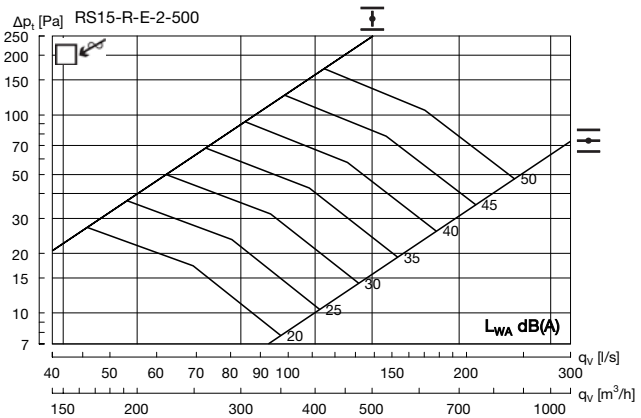
RS15 + R - Exhaust air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	6	1	4	-2	-7	-10	-17	-25



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	2	0	2	-2	-5	-10	-16	-24



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	1	1	1	-2	-6	-9	-16	-25

Versio

RS16

RS16 with upper section type V

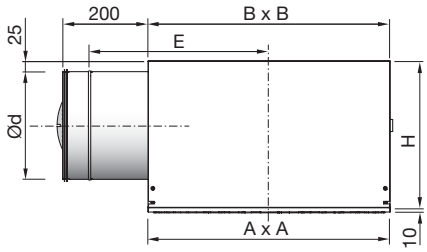
RS16 with plenum box type H

Description

RS16 is a square swirl diffuser with adjustable bars that can be used for both supply air and exhaust. The swirl pattern ensures high induction and a large dynamic range, and is therefore ideal for the horizontal supply of very cold air. For exhaust, the diffuser is supplied as standard without bars.

- High capacity
- Large dynamic range
- High induction
- Ideal for the supply of very cold air
- Can be used for both supply air and exhaust

Dimensions



RS16-H Ød	Pattern	A mm	B mm	H mm	E mm	Weight kg
250	600	*-	560	340	420	12.3
315	600	*-	560	405	420	13.1

* Face plate dimension A x A depends on ceiling system. See **"Ceiling adjustment"** for detailed dimensions. For further details on plenum box - see **"Plenum boxes"**.

Order code

Product		**RS**	**16**	**b**	**c**	**d**	**eee**	**f**
Type								
RS								
Design								
16								
Box type								
V - H - R								
Functional use								
S = Supply air								
E = Exhaust								
Damper								
0 = No damper	(Box	: H, V)						
1 = Damper	(Box	: H, R)						
2 = Damper / Meas.outlets	(Box	: H)						
Connection dim.								
Ø315	(Box	: V)						
Ø250-315	(Box	: H)						
500x100	(Box	: R)						
Ceiling system								
1 - 14	Go to chapter Ceiling tile adaption							

Example: RS-16-V-S-0-315-1

Maintenance

The face plate can be removed to enable cleaning of internal parts or to gain access to the duct or box. The visible parts of the diffuser can be wiped with a damp cloth.

Materials and finish

Grille box/plenum box:
Material: Galvanised steel

Face plate:
Material: Galvanised steel
Bars: Black ABS-plastic
Standard finish: Powder-coated
Standard colour: RAL 9010, gloss 30

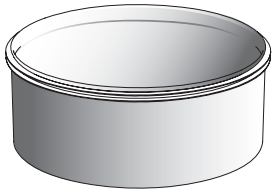
The diffuser is available in other colours. Please contact Lindab's sales department for further information.

Versio

RS16

Accessories

Extension piece MBZ



Order code

Product	MBZ	aaa
Type		
Size		

Example: MBZ-315

Mounting bracket PBB

Suspension MHS

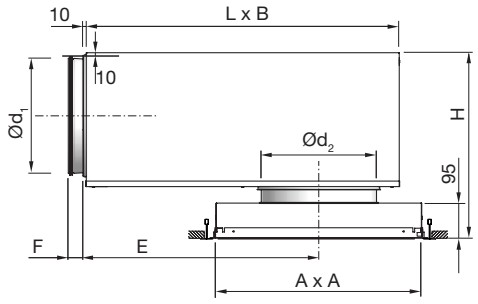
Order code

Product	aaa
Type	

Example: MHS

Plenum box MBB

RS16-V + MBB



RS16-V + MBB							
duct	RS16-V		B	E	F	H*	L
Ød1 mm	Ød2 mm	Pattern	mm	mm	mm	mm	mm
200	315	600	460	396	70	355 - 395	565
250	315	600	540	486	70	405 - 445	698
315	315	600	540	646	70	470 - 510	858

* Using accessory MBZ the H dimension will increase:
$Ød_2$ = 315 mm => H +60 mm

Order code

Product	MBB	aaa	315	c
Type				
MBB				
Duct connection Ød1				
Ø200-315				
Diffuser dimension Ød2				
Ø315				
Functional use				
S = Supply air				
E = Exhaust				

Example: RS-16-V-S-0-315-1+MBB-315-315-S

Versio

RS16

Technical data

Capacity

Air flow q_v [l/s] and [m^3/h], total pressure Δp_t [Pa], throw $l_{0.2}$ [m] and sound power 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 $L_{WA}+K_{ok}$. K_{ok} values are specified in charts beneath the diagrams on the following pages.

Quick selection, supply air

RS16-V + MBB

RS16-V + MBB		$\Delta p_t \geq 50$ Pa		$\Delta p_t \geq 50$ Pa	
duct	RS16-V	30 dB(A)		35 dB(A)	
$Ød_1$	$Ød_2$	l/s	m^3/h	l/s	m^3/h
200	315	99	356	131	472
250	315	126	454	160	576
315	315	155	558	185	666

RS16 + H

RS16 + H			$\Delta p_t \geq 50$ Pa		$\Delta p_t \geq 50$ Pa	
Size Ød	Minimum		30 dB(A)		35 dB(A)	
mm	l/s	m^3/h	l/s	m^3/h	l/s	m^3/h
250	71	254	-	-	112	403
315	95	342	-	-	174	626

Sound attenuation

Sound attenuation of the diffusers ΔL from duct to room, including end reflection - see table below.

RS16-V + MBB

RS16-V + MBB		Centre frequency Hz							
duct	RS16-V								
$Ød_1$	$Ød_2$	63	125	250	500	1K	2K	4K	8K
200	315	13	9	3	16	16	15	17	16
250	315	12	7	5	17	16	17	17	18
315	315	8	10	8	17	18	17	18	23

RS16 + H

RS16 + H	Centre frequency Hz							
Size Ød								
mm	63	125	250	500	1K	2K	4K	8K
250	13	8	4	8	5	5	7	9
315	12	7	5	11	5	5	6	8

RS16 + R

RS16 + R	Mean frequency Hz							
Size-2								
mm	63	125	250	500	1K	2K	4K	8K
500x100	12	7	2	4	2	5	5	5

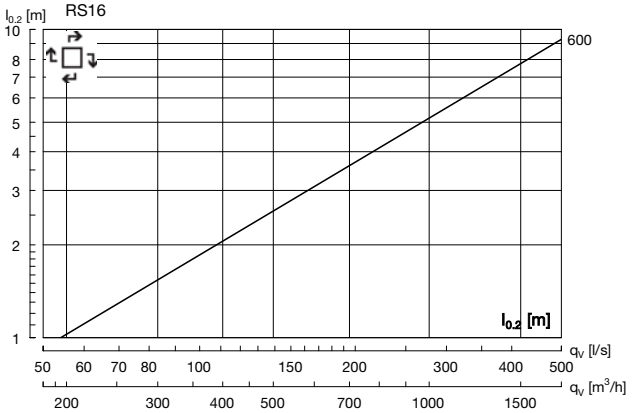
Versio

RS16

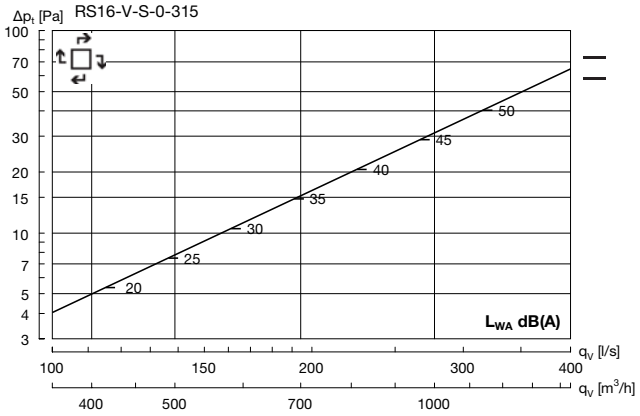
Technical data

Throw $l_{0.2}$

Throw $l_{0.2}$ [m] is specified at a terminal velocity of 0.2 m/s. The designation by the lines specifies the pattern of dispersal.



RS16-V without plenum box – Supply air

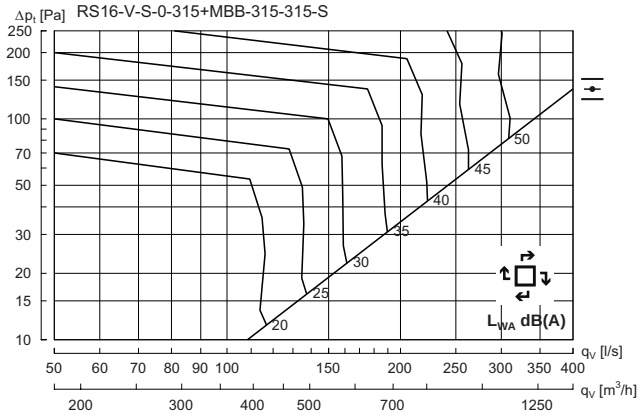


Versio

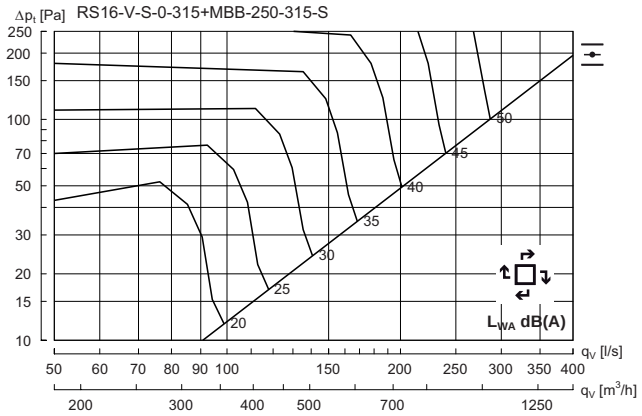
RS16

Technical data

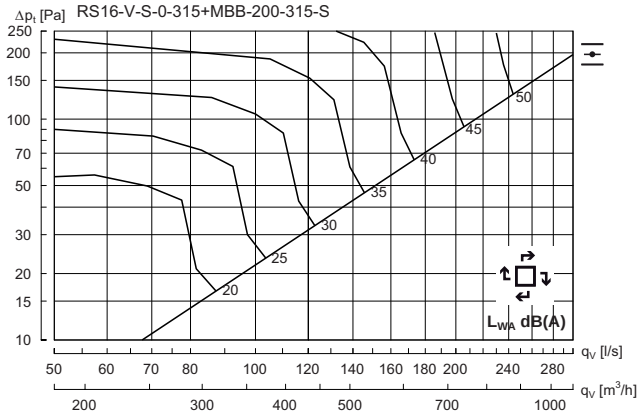
RS16-V 315 + MBB - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	8	1	-1	0	-6	-14	-21	-30



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	10	4	-1	-1	-5	-12	-19	-26



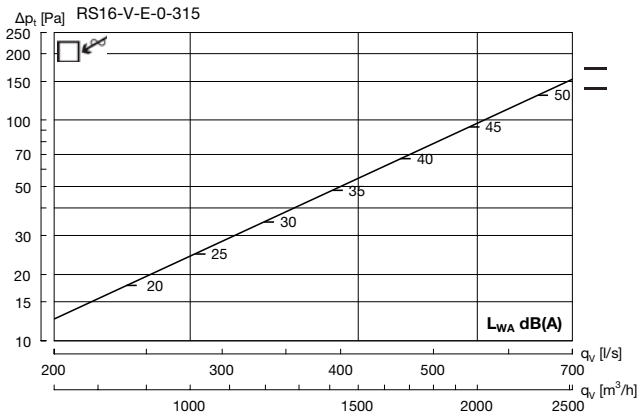
Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	12	7	-1	-2	-5	-12	-18	-24

Versio

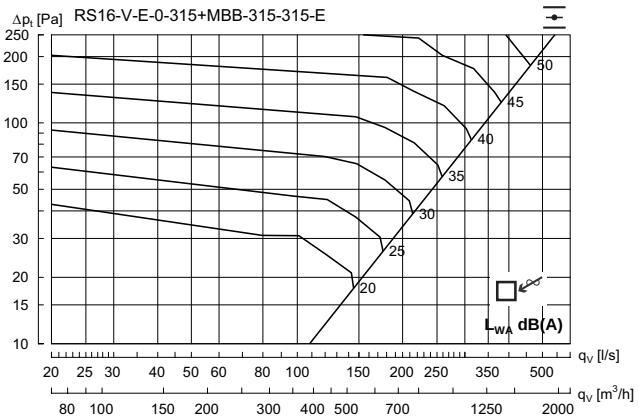
RS16

Technical data

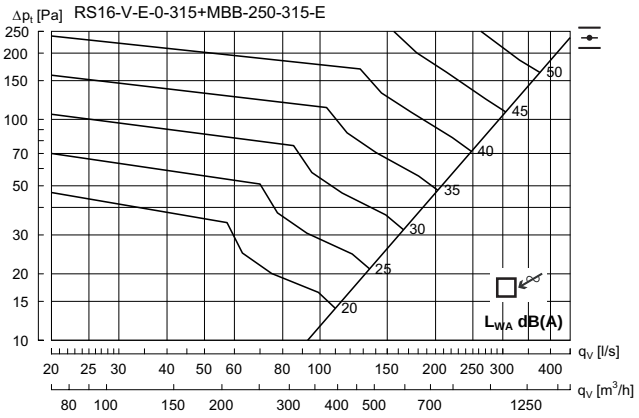
RS16-V without plenum box – Exhaust air



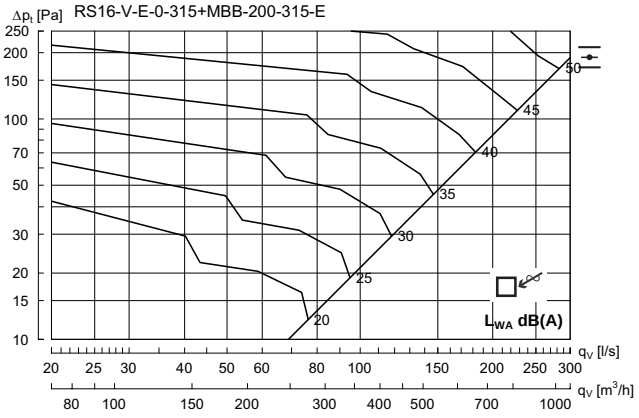
RS16-V 315 + MBB - Exhaust air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	11	5	3	-4	-6	-9	-15	-26



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	11	6	3	-4	-6	-11	-16	-24



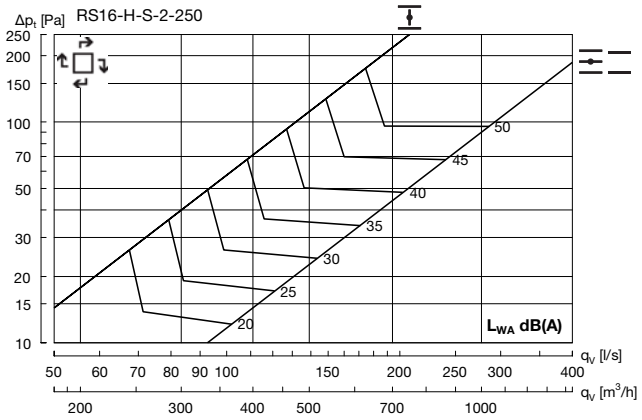
Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	14	5	1	-3	-6	-9	-13	-21

Versio

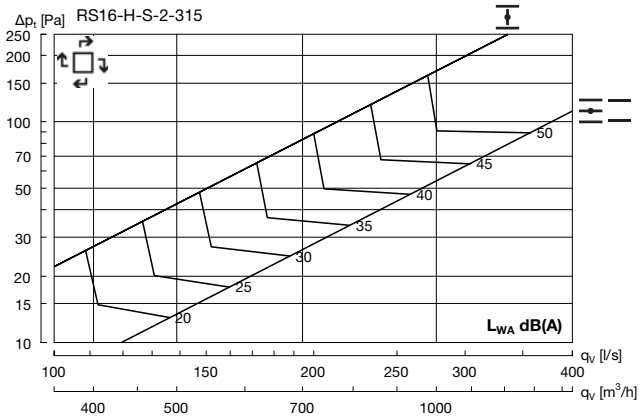
RS16

Technical data

RS16 + H - Supply air

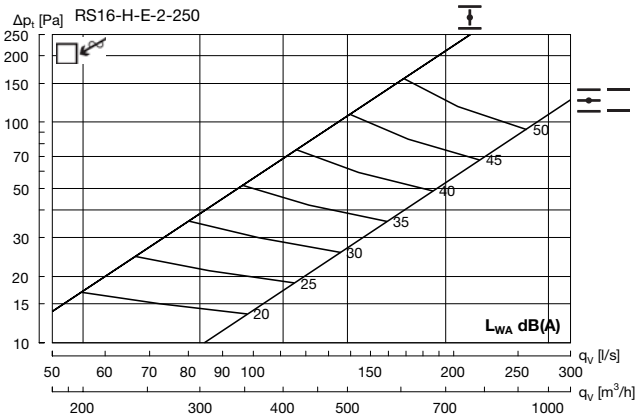


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	5	5	2	-1	-6	-13	-19	-27

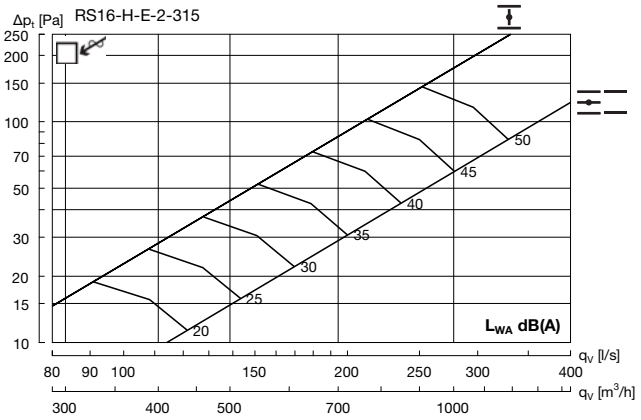


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	8	5	1	-1	-5	-13	-21	-31

RS16 + H - Exhaust air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	2	6	3	-2	-7	-12	-21	-30



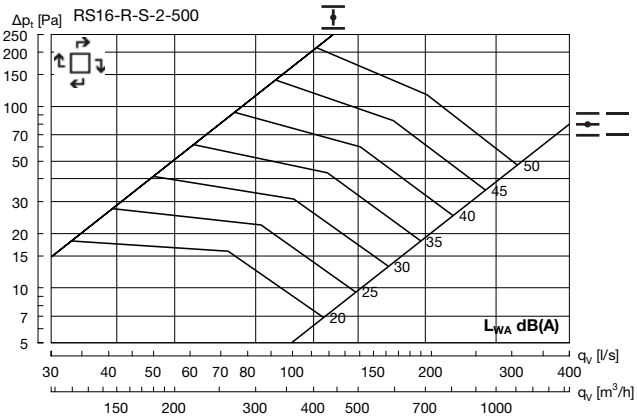
Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	8	5	2	-2	-5	-12	-21	-32

Versio

RS16

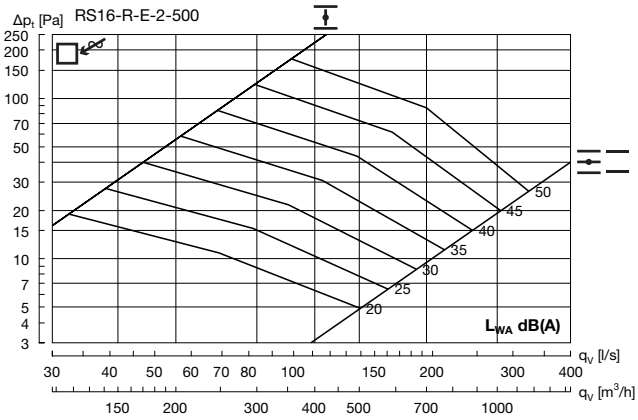
Technical data

RS16 + R - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	9	2	3	-1	-8	-12	-21	-28

RS16 + R - Exhaust air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	8	0	0	-3	-5	-8	-18	-26

Versio

NS19

NS19 with grille box type V

NS19 with plenum box type H

Description

NS19 is a square diffuser with individually adjustable nozzles. The diffuser is suitable for the horizontal supply of cooled air, where great flexibility in the dispersal pattern is required. The diffuser can also be set to a vertical supply air pattern, enabling supply of heated air. The diffuser is supplied as standard with nozzles set for swirl.

- Adjustable dispersal patterns
- No pressure change for different dispersal patterns
- Suitable for horizontal or vertical supply air

Maintenance

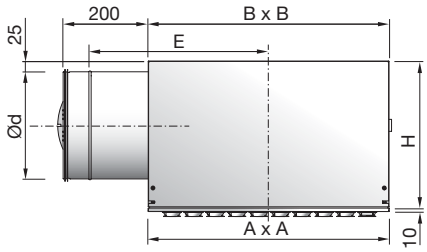
The face plate can be removed to enable cleaning of internal parts or to gain access to the duct or box. The visible parts of the diffuser can be wiped with a damp cloth.

Order code

Product		**NS**	**19**	**b**	**S**	**d**	**eee**	**f**
Type								
NS								
Design								
19								
Box type								
V - H - R								
Functional use								
S = Supply air								
Damper								
0 = No damper	(Box	: H, V)						
1 = Damper	(Box	: H, R)						
2 = Damper / Meas.outlets	(Box	: H)						
Connection dim.								
Ø160-315	(Box	: V)						
Ø125-315	(Box	: H)						
200x100 - 500x100	(Box	: R)						
Ceiling system								
1 - 14	Go to chapter Ceiling tile adaption							

Example: NS-19-V-S-0-200-1

Dimensions



NS19-H Ød	Pattern	A mm	B mm	H mm	E mm	Weight kg
125	300	*-	380	215	350	3.30
160	400	*-	380	250	350	4.60
200	500	*-	460	290	390	6.50
250	600	*-	560	340	420	9.30
315	600	*-	560	405	420	10.1

* Face plate dimension A x A depends on ceiling system. See **"Ceiling systems"** for detailed dimensions. For further details on plenum box, see **"Plenum boxes"**.

Materials and finish

Grille box/plenum box:
Material: Galvanised steel

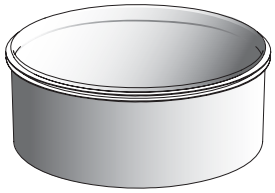
Face plate:
Material: Galvanised steel
Nozzles: White, ABS.plastic
Standard finish: Powder-coated
Standard colour: RAL 9003, gloss 30

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

Versio NS19

Accessories

Extension piece MBZ



Order code

Product	MBZ	aaa
Type		
Size		

Example: MBZ-200

Mounting bracket PBB

Suspension MHS

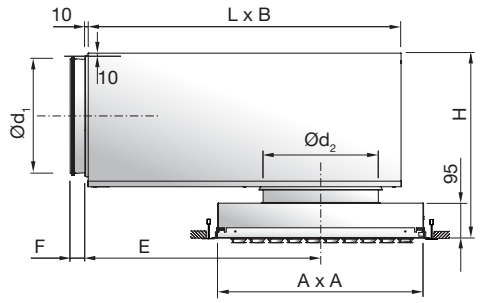
Order code

Product	aaa
Type	

Example: MHS

Plenum box MBB

NS19-V + MBB



NS19-V + MBB							
duct	NS19-V		B	E	F	H*	L
Ød1 mm	Ød2 mm	Pattern	mm	mm	mm	mm	mm
100	160	300	260	216	50	255 - 295	310
125	160	300	310	262	50	280 - 320	376
125	200	400	310	262	50	280 - 320	376
160	160	300	380	323	50	314 - 354	459
160	200	400	380	323	50	314 - 354	459
160	250	500	380	323	50	314 - 354	459
200	200	400	460	396	70	355 - 395	565
200	250	500	460	396	70	355 - 395	565
200	315	600	460	396	70	355 - 395	565
250	250	500	540	486	70	405 - 445	698
250	315	600	540	486	70	405 - 445	698
315	315	600	540	646	70	470 - 510	858

* Using accessory MBZ the H dimension will increase:
$Ød_2$ = 160 - 200 mm => H +40 mm
$Ød_2$ = 250 - 315 mm => H +60 mm

Order code

Product	MBB	aaa	bbb	S
Type				
MBB				
Duct connection $Ød_1$				
Ø100-315				
Diffuser dimension $Ød_2$				
Ø160-315				
Functional use				
S = Supply air				

Example: NS-19-V-S-0-200-1+MBB-200-200-S

Versio

NS19

Technical data

Capacity

Air flow q_v [l/s] and [m^3/h], total pressure Δp_t [Pa], throw $l_{0.2}$ [m] and sound power 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 $L_{WA}+K_{ok}$. K_{ok} values are specified in charts beneath the diagrams on the following pages.

Quick selection, supply air

NS19-V + MBB

NS19-V + MBB		$\Delta p_t \geq 50$ Pa		$\Delta p_t \geq 50$ Pa	
duct	NS19-V	30 dB(A)		35 dB(A)	
$Ød_1$	$Ød_2$	l/s	m^3/h	l/s	m^3/h
100	160	37	133	44	158
125	160	45	162	56	202
125	200	52	187	63	227
160	160	48	173	58	209
160	200	60	216	74	266
160	250	70	252	88	317
200	200	68	245	82	295
200	250	80	288	97	349
200	315	89	320	114	410
250	250	89	320	105	378
250	315	104	374	128	461
315	315	129	464	152	547

Supply air

NS19 + H

NS19 + H			$\Delta p_t \geq 50$ Pa		$\Delta p_t \geq 50$ Pa	
Size Ød	Minimum		30 dB(A)		35 dB(A)	
mm	l/s	m^3/h	l/s	m^3/h	l/s	m^3/h
125	26	93	31	112	40	144
160	33	118	50	180	60	216
200	57	204	60	216	77	277
250	71	254	95	342	113	407
315	95	342	-	-	147	529

Sound attenuation

Sound attenuation of the diffusers ΔL from duct to room, including end reflection - see table below.

NS19-V + MBB

NS19-V + MBB									
duct	NS19-V	Centre frequency Hz							
$Ød_1$	$Ød_2$	63	125	250	500	1K	2K	4K	8K
100	160	18	16	5	17	20	19	18	21
125	160	17	13	8	20	18	18	18	21
125	200	13	11	5	16	17	16	17	19
160	160	17	16	11	23	21	20	21	21
160	200	13	14	8	22	21	19	20	21
160	250	14	14	5	19	17	17	18	20
200	200	13	10	7	17	20	17	19	18
200	250	12	9	6	16	18	17	19	17
200	315	12	8	3	14	17	15	17	17
250	250	14	9	7	18	19	19	19	19
250	315	14	7	5	16	17	18	18	18
315	315	8	9	8	16	18	17	18	24

NS19 + H

NS19 + H								
Size Ød	Centre frequency Hz							
mm	63	125	250	500	1K	2K	4K	8K
125	17	15	5	12	12	7	8	12
160	17	13	4	13	14	7	7	10
200	15	9	3	14	10	8	8	14
250	12	8	5	10	7	7	8	13
315	12	6	5	12	6	6	8	13

Installation -and balancing instruction

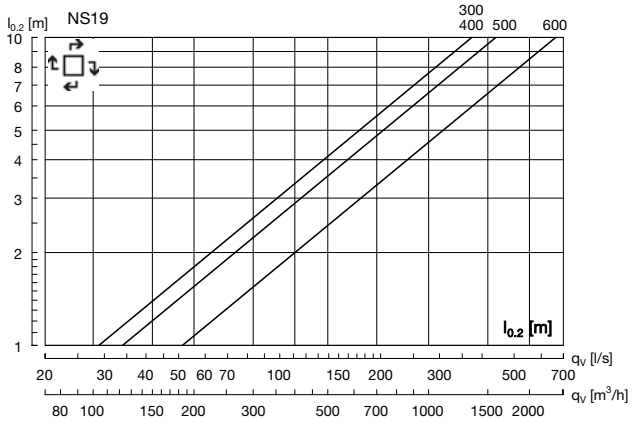
For futher information go to www.lindQST.com and installation -and balancing instruction.

Versio NS19

Technical data

Throw $l_{0.2}$

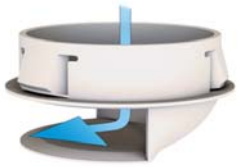
Throw $l_{0.2}$ [m] is specified at a terminal velocity of 0.2 m/s. The designation by the lines specifies the pattern of dispersal.



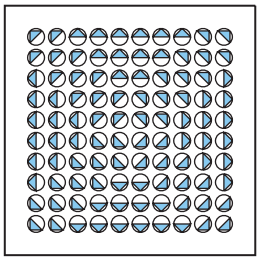
Correction throw

4-way	3-way	2-way	1-way
1,3	2	2,5	4,6

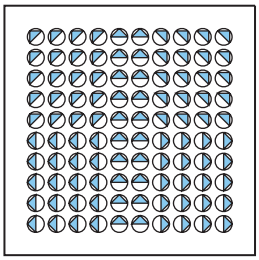
Air patterns



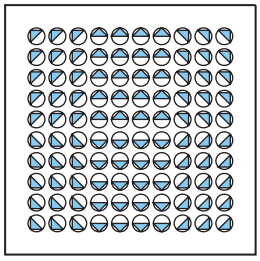
4 - ways



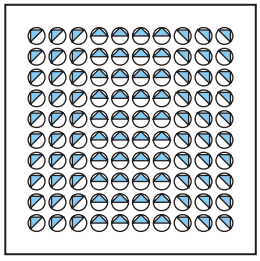
3 - ways



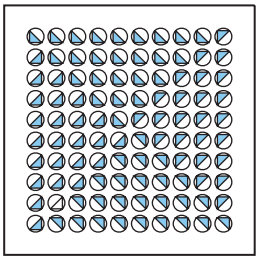
2 - ways



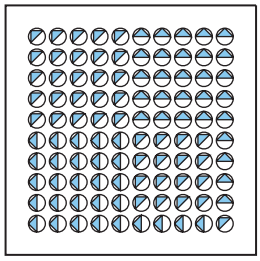
1 - ways



Rotation



2 - ways corner



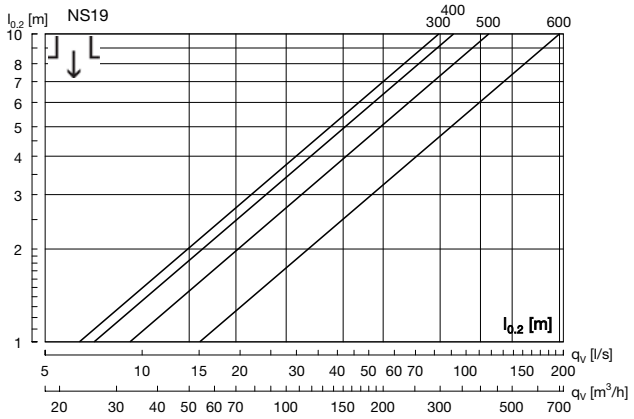
Versio

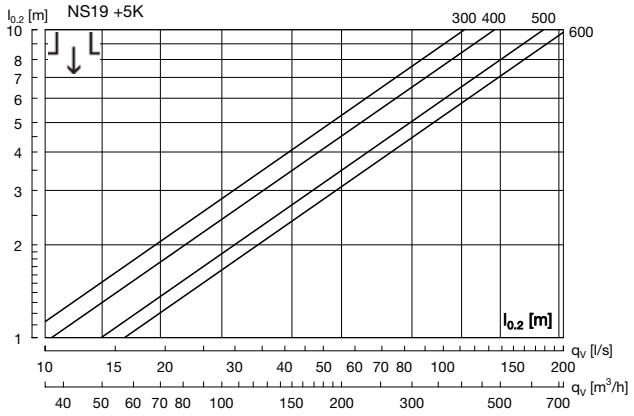
NS19

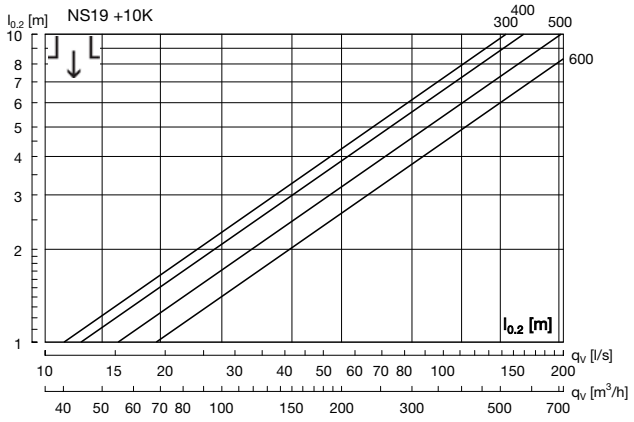
Technical data

Throws/turning points

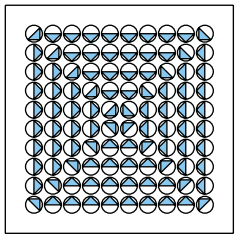
Throw $l_{0.2}$ [m] can be seen in the diagram. The throw applies for isothermal air at a terminal velocity of 0.2 m/s. Turning point $l_{0.0}$ (m) can be seen in the diagram for heated air, +5 K and +10 K respectively.
The designation by the lines specifies the pattern of dispersal.



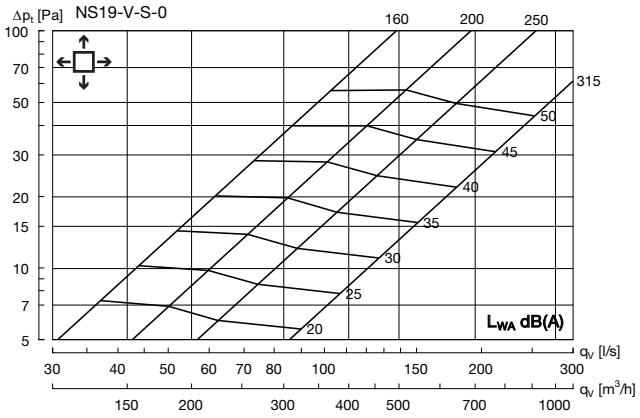




Nozzle setting - vertical



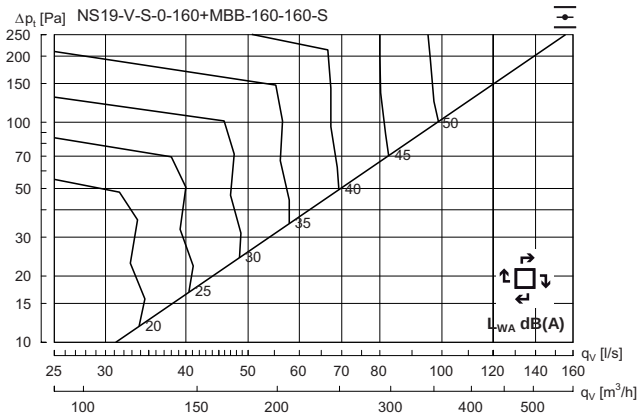
NS19-V without plenum box



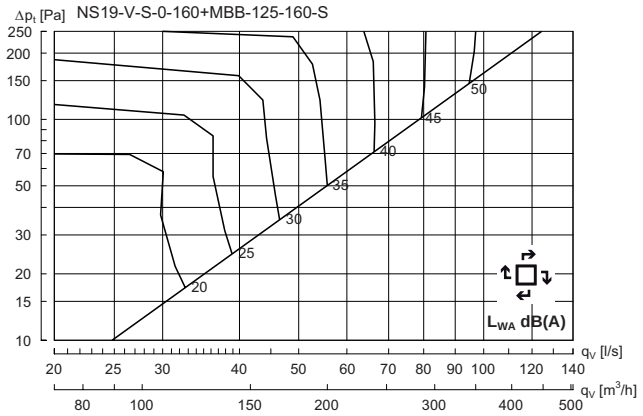
Versio NS19

Technical data

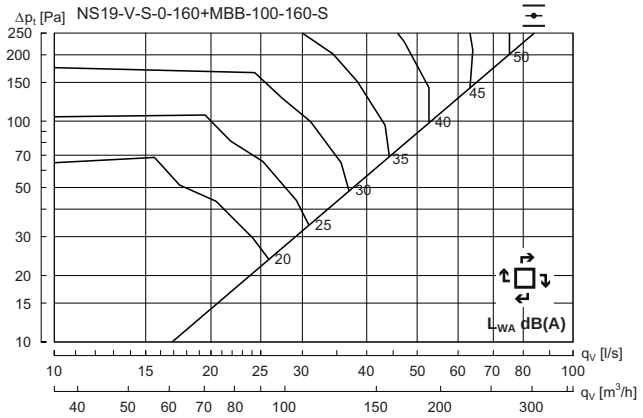
NS19-V 160 + MBB - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	10	4	-2	1	-6	-15	-22	-33

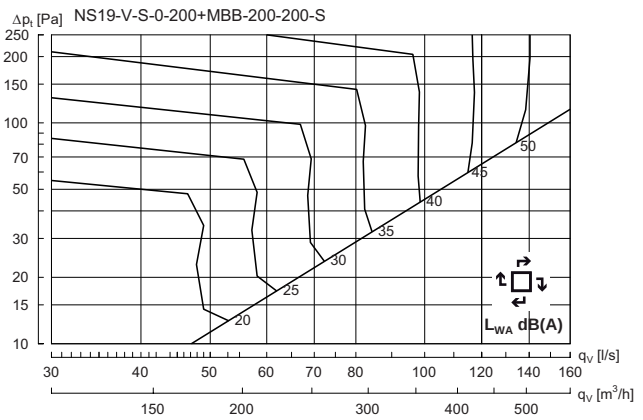


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	8	5	-1	0	-6	-13	-18	-28

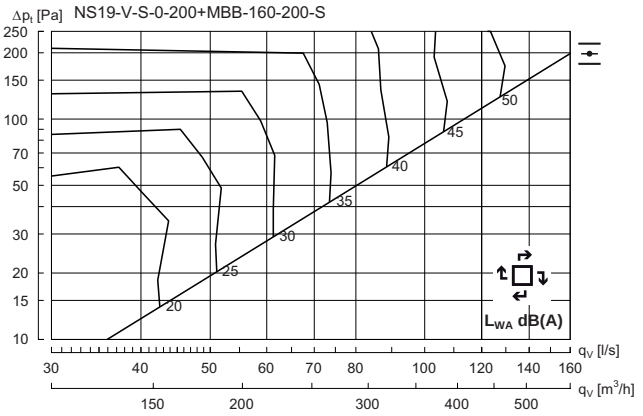


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	11	4	2	-1	-8	-12	-16	-22

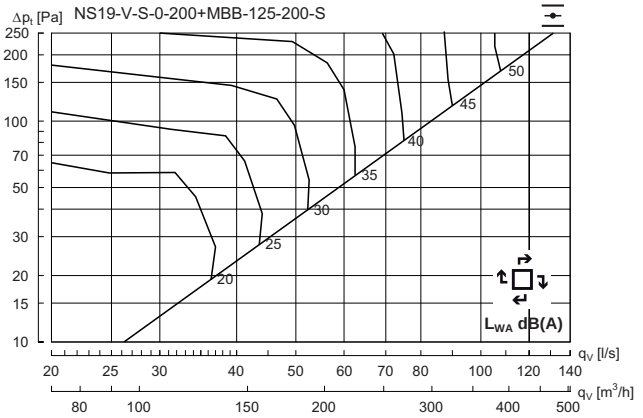
NS19-V 200 + MBB - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	11	4	-3	0	-5	-16	-23	-33



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	12	5	-1	-1	-5	-13	-19	-26



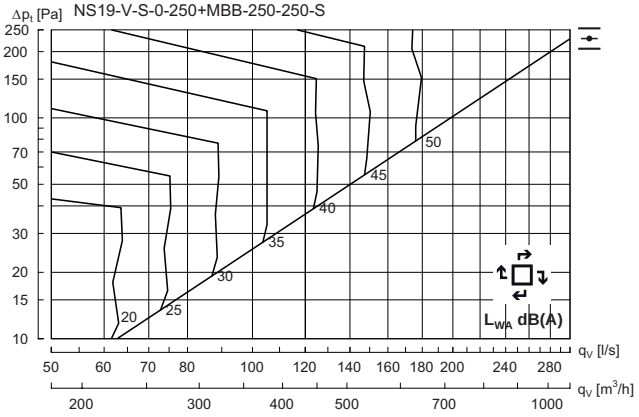
Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	8	6	2	-1	-7	-13	-18	-26

Versio

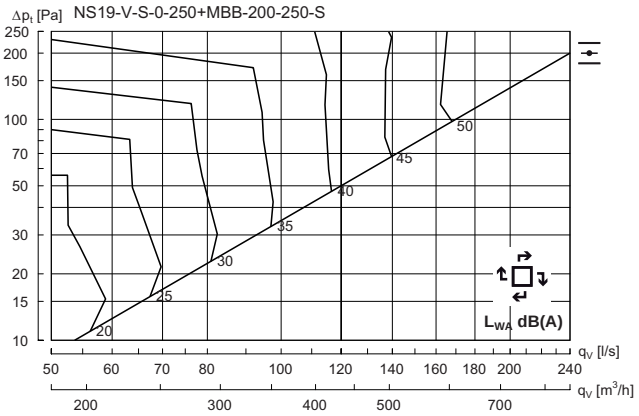
NS19

Technical data

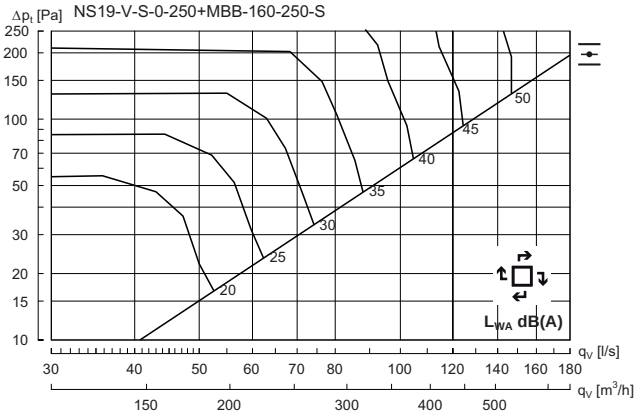
NS19-V 250 + MBB - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	8	4	-4	0	-5	-16	-24	-37

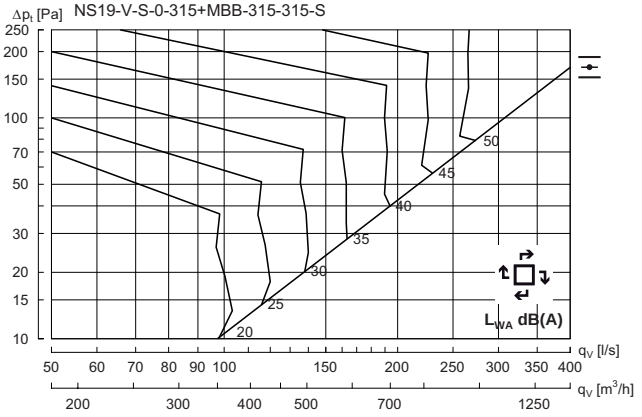


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	9	6	-2	0	-5	-15	-22	-33

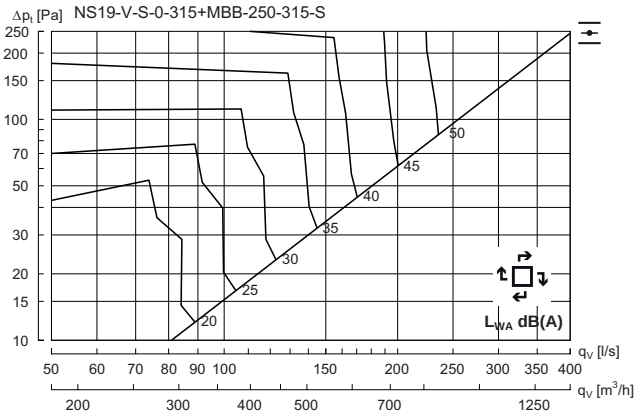


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	13	6	0	-1	-5	-12	-18	-26

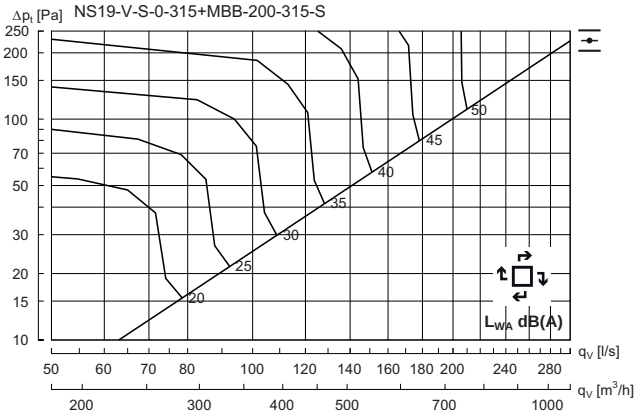
NS19-V 315 + MBB - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	10	1	-2	0	-5	-16	-23	-34



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	10	3	-2	0	-5	-15	-21	-28

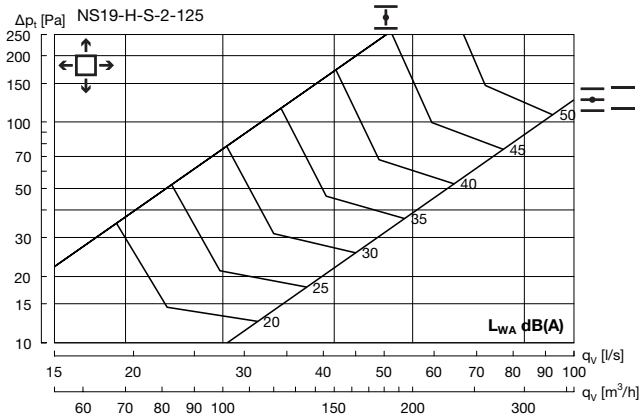


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	9	6	-1	-1	-5	-13	-20	-28

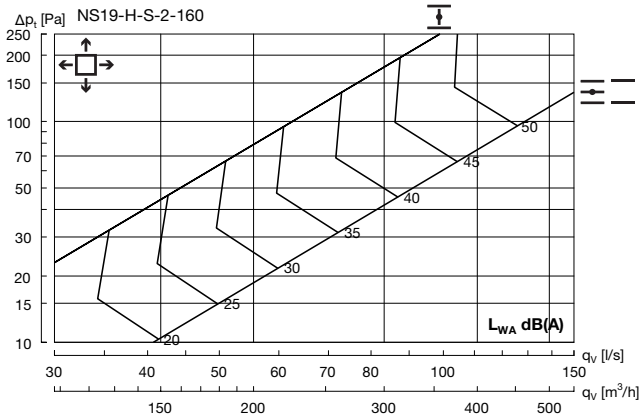
Versio NS19

Technical data

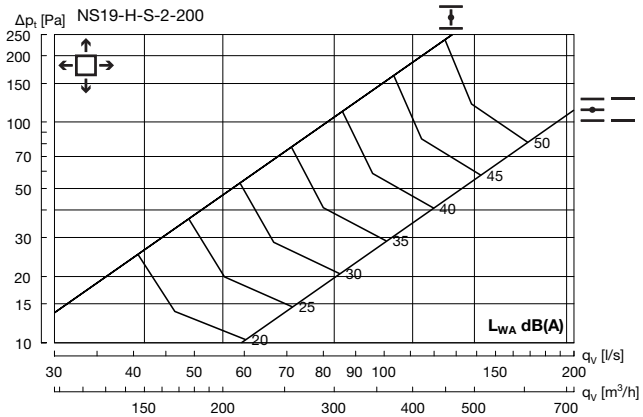
NS19 + H - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	9	7	6	-4	-9	-15	-21	-28

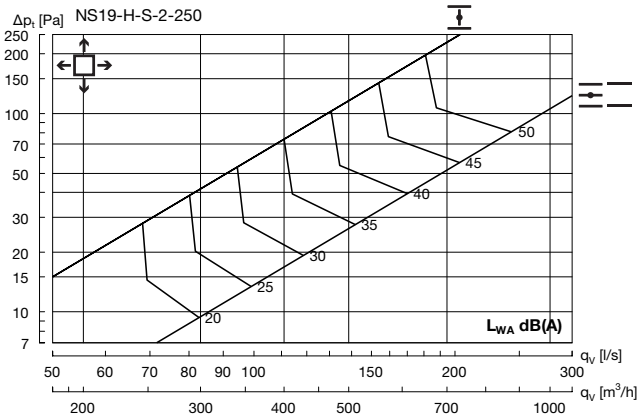


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	9	7	6	-4	-9	-15	-21	-28

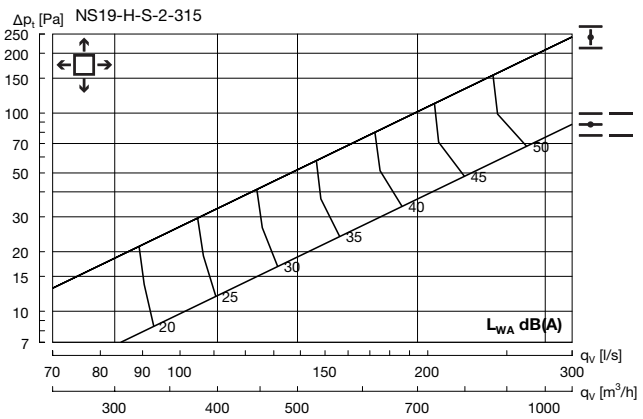


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	11	6	3	-1	-7	-16	-22	-30

NS19 + H - Supply air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	6	7	3	-1	-7	-16	-22	-31



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	6	7	3	-1	-8	-17	-25	-36

Versio

GS23

GS23 with grille box type V

GS23 with plenum box type H

Description

GS23 is a square diffuser with an aluminium grid. GS23 is used for exhaust.

- High capacity

Maintenance

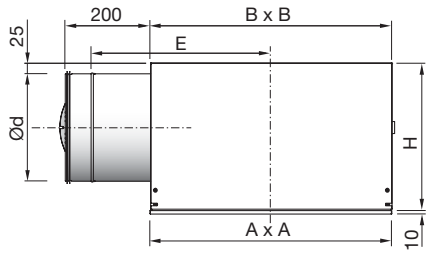
The face plate can be removed to enable cleaning of internal parts or to gain access to the duct or box. The visible parts of the diffuser can be wiped with a damp cloth.

Order code

Product			**GS**	**23**	**b**	**E**	**d**	**eee**	**f**
Type									
GS									
Design									
23									
Box type									
V - H - R									
Functional use									
E = Exhaust									
Damper									
0 = No damper	(Box | : H, V)							
1 = Damper	(Box | : H, R)							
2 = Damper / Meas.outlets	(Box | : H)							
Connection dim.									
Ø160-315	(Box | : V)							
Ø125-315	(Box | : H)							
200x100 - 500x100	(Box | : R)							
Ceiling system									
1 - 14	Go to chapter Ceiling tile adaption								

Example: GS-23-V-E-0-200-1

Dimensions



GS23-H		A	B	H	E	Weight
Ød	Pattern	mm	mm	mm	mm	kg
125	300	*-	380	215	350	5.9
160	400	*-	380	250	350	5.9
200	500	*-	460	290	390	8.5
250	600	*-	560	340	420	12.3
315	600	*-	560	405	420	13.1

* Face plate dimension A x A depends on ceiling system. See **"Ceiling adjustment"** for detailed dimensions. For further details on plenum box, see **"Plenum boxes"**.

Materials and finish

Grille box/plenum box:
Material: Galvanised steel

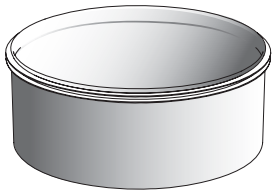
Face plate:
Material: Galvanised steel
Grid: Aluminium
Standard finish: Powder-coated
Standard colour: RAL 9010, gloss 30

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

Versio GS23

Accessories

Extension piece MBZ



Order code

Product	MBZ	aaa
Type		
Size		

Example: MBZ-200

Mounting bracket PBB

Suspension MHS

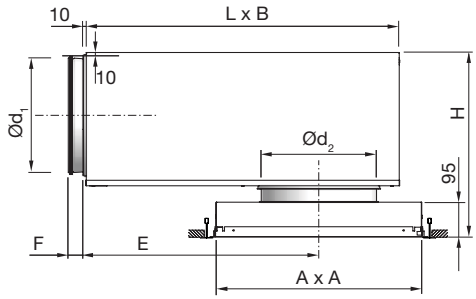
Order code

Product	aaa
Type	

Example: MHS

Plenum box MBB

GS23-V + MBB



GS23-V + MBB duct Ød1 mm	GS23-V Ød2 mm	Pattern	B mm	E mm	F mm	H* mm	L mm
100	160	300	260	216	50	255 - 295	310
125	160	300	310	262	50	280 - 320	376
125	200	400	310	262	50	280 - 320	366
160	160	300	380	323	50	314 - 354	459
160	200	400	380	323	50	314 - 354	459
160	250	500	380	323	50	314 - 354	459
200	200	400	460	396	70	355 - 395	565
200	250	500	460	396	70	355 - 395	565
200	315	600	460	396	70	355 - 395	565
250	250	500	540	486	70	405 - 445	698
250	315	600	540	486	70	405 - 445	698
315	315	600	540	646	70	470 - 510	858

* Using accessory MBZ the H dimension will increase:
$Ød_2$ = 160 - 200 mm => H +40 mm
$Ød_2$ = 250 - 315 mm => H +60 mm

Order code

Product	MBB	aaa	bbb	E
Type				
MBB				
Duct connection $Ød_1$				
Ø100-315				
Diffuser dimension $Ød_2$				
Ø160-315				
Functional use				
E = Exhaust				

Example: GS-23-V-E-0-200-1+MBB-200-200-E

Versio

GS23

Technical data

Capacity

Air flow q_v [l/s] and [m^3/h], total pressure Δp_t [Pa], throw $l_{0.2}$ [m] and sound power level L_{WA} [dB(A)] can be seen in the diagrams.

Sound attenuation

Sound attenuation of the diffusers ΔL from duct to room, including end reflection - see table below.

GS23 + H

GS23 + H								
Size Ød	Centre frequency Hz							
mm	63	125	250	500	1K	2K	4K	8K
125	17	16	5	9	10	4	5	5
160	16	14	3	11	11	4	4	4
200	15	9	2	11	7	4	4	6
250	14	8	3	9	4	3	4	6
315	12	6	4	10	3	3	4	6

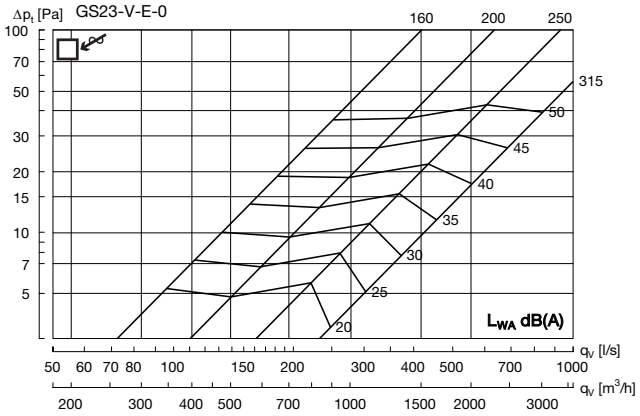
GS23-V + MBB

GS23-V + MBB									
duct	GS23-V	Centre frequency Hz							
$Ød_1$	$Ød_2$	63	125	250	500	1K	2K	4K	8K
100	160	20	16	5	19	20	19	18	21
125	160	16	13	9	20	18	18	19	20
125	200	14	12	6	17	16	16	18	19
160	160	17	16	10	24	20	20	21	21
160	200	15	15	7	22	21	19	20	21
160	250	15	14	5	20	16	16	17	19
200	200	14	11	7	18	21	17	20	18
200	250	13	9	5	17	18	16	18	17
200	315	13	8	3	15	17	15	17	16
250	250	15	8	7	18	18	18	18	19
250	315	15	7	6	16	16	17	17	18
315	315	8	11	8	16	18	17	17	22

Installation -and balancing instruction

For futher information go to www.lindQST.com and installation -and balancing instruction.

GS23-V without plenum box - Exhaust air

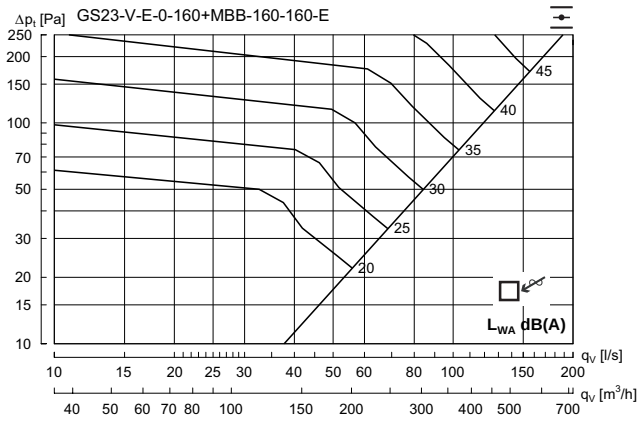


Versio

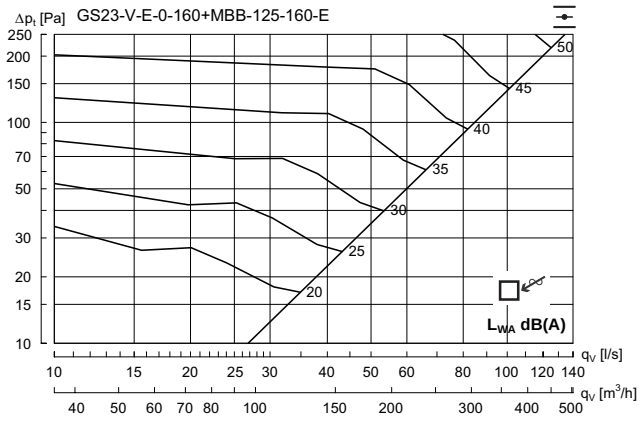
GS23

Technical data

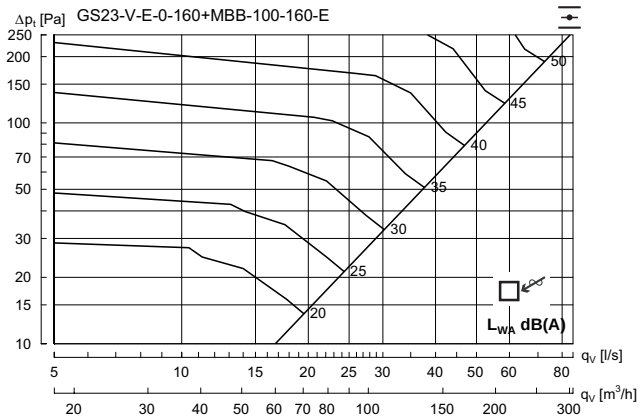
GS23-V 160 + MBB - Exhaust air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	15	5	0	-3	-6	-9	-14	-19

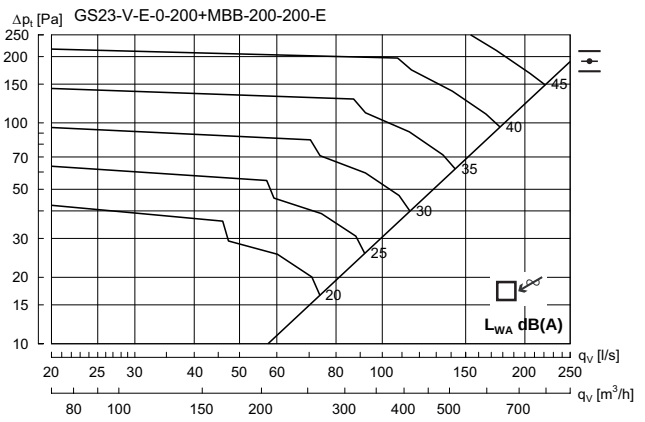


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	11	5	1	-2	-6	-11	-15	-22

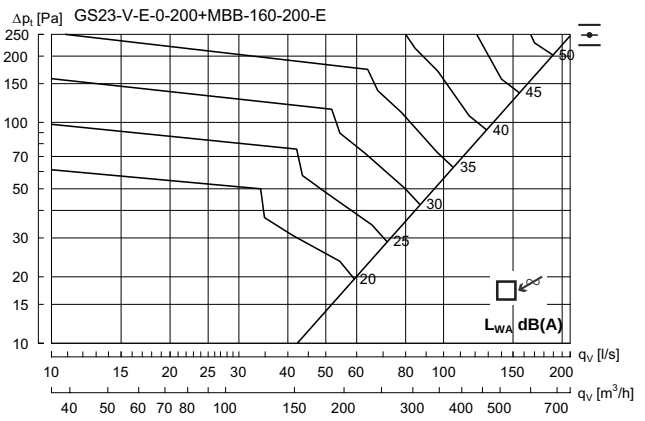


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	8	4	4	-2	-8	-12	-16	-23

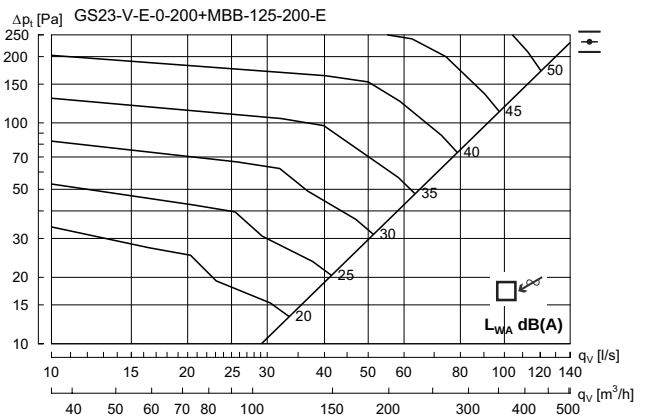
GS23-V 200 + MBB - Exhaust air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	14	5	1	-3	-6	-9	-13	-21



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	14	5	0	-3	-6	-9	-14	-21



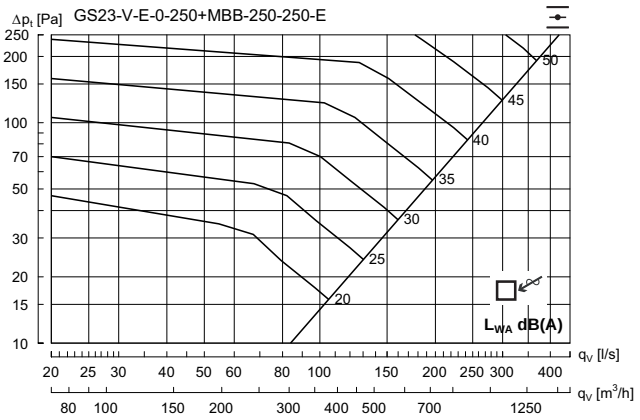
Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	9	4	1	-1	-6	-11	-15	-22

Versio

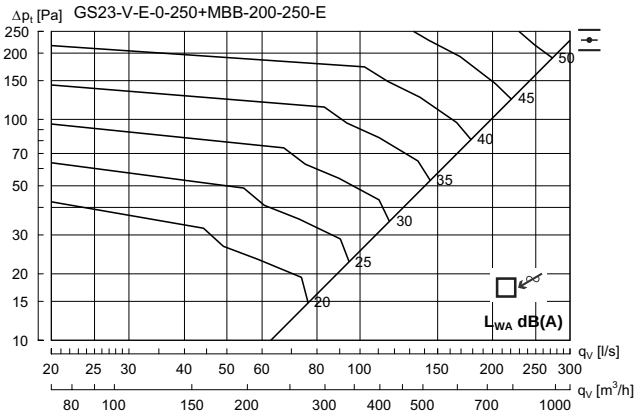
GS23

Technical data

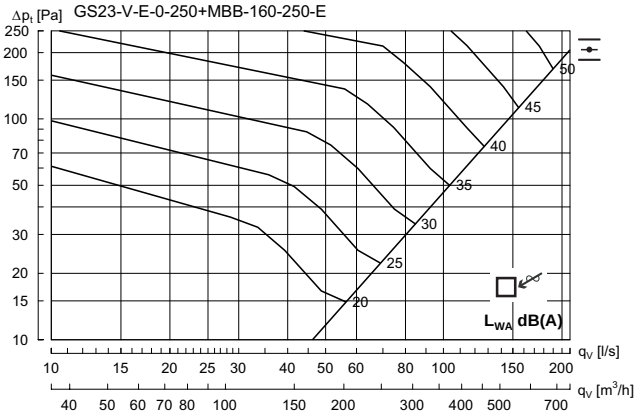
GS23-V 250 + MBB - Exhaust air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	10	5	2	-3	-6	-9	-15	-23

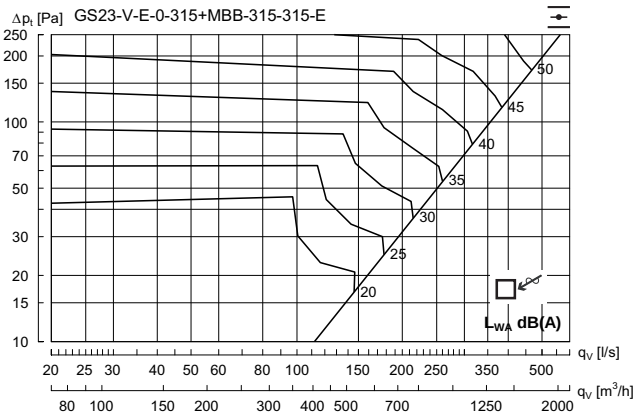


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	13	5	1	-3	-6	-10	-14	-22

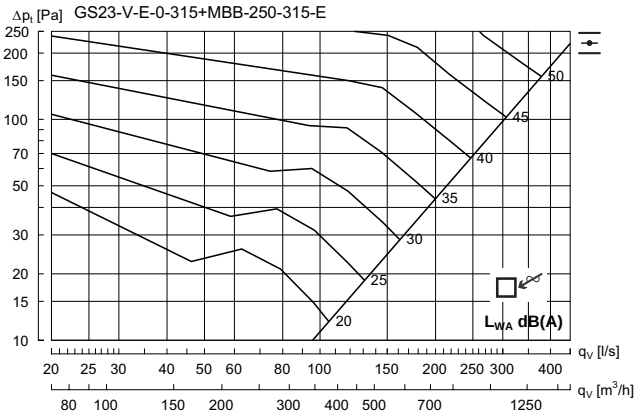


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	13	5	1	-3	-6	-9	-14	-22

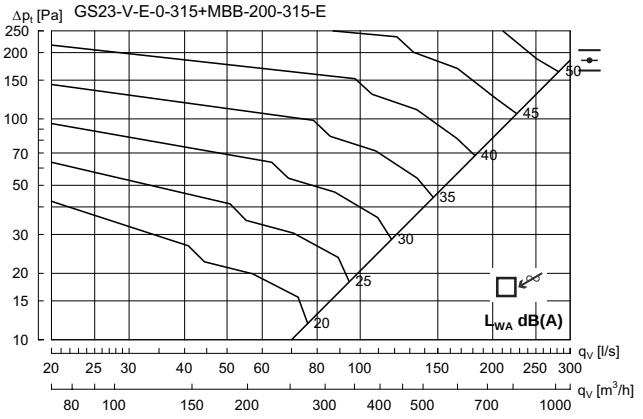
GS23-V 315 + MBB - Exhaust air



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	11	5	3	-4	-7	-9	-14	-25



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	11	5	2	-3	-6	-10	-15	-24



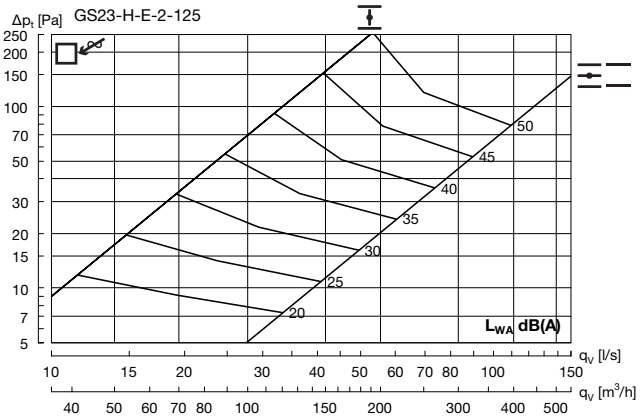
Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	13	5	1	-3	-6	-9	-14	-22

Versio

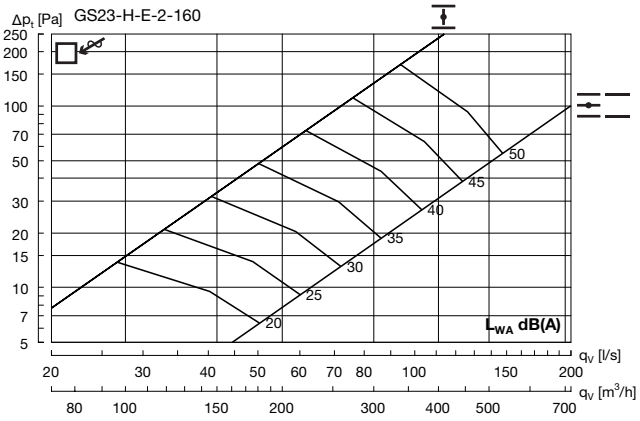
GS23

Technical data

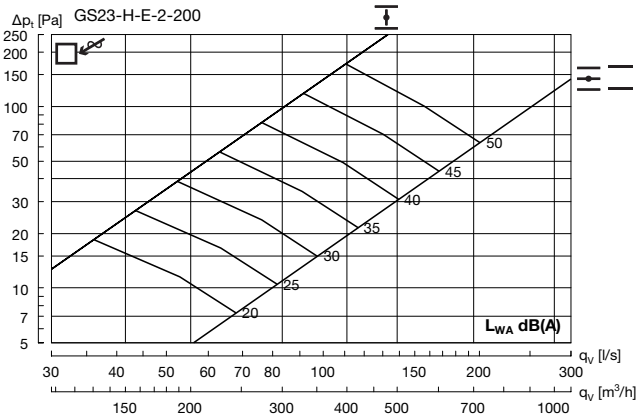
Exhaust with plenum box type H



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	4	4	5	-3	-9	-11	-18	-25

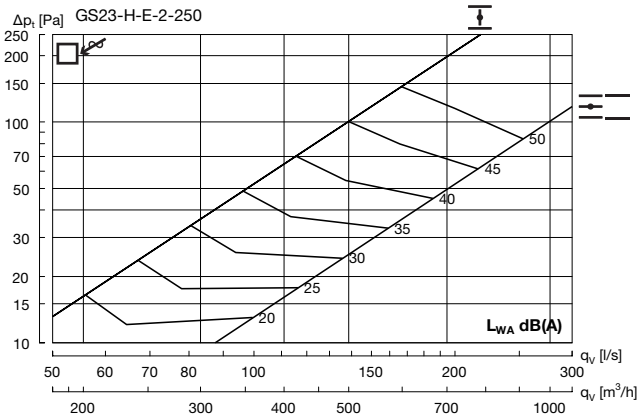


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	6	4	6	-3	-10	-13	-20	-29

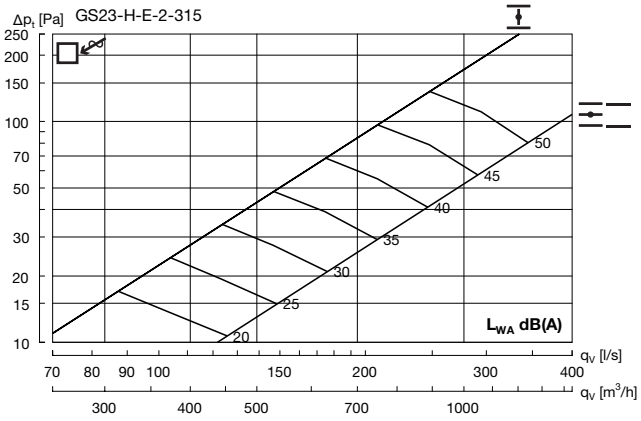


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	8	5	4	-2	-8	-11	-19	-24

Exhaust with plenum box type H



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	3	6	2	-2	-6	-12	-21	-32



Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	10	6	2	-3	-5	-11	-20	-31

Lindab Lineo

MTL, Fingerrod C, Copenhagen Airport

Lindab Lineo

Slotdiffuser

	Product	Functions	Page
	**MTL**		**265**
	**STB** **STU**		**272**

Lindab Lineo

MTL, Hotel Marriot, Copenhagen

Lindab Lineo

With the slim construction of the slotdiffuser, it is possible to obtain a very simple solution for your ventilation needs, which can be integrated in very different environments.

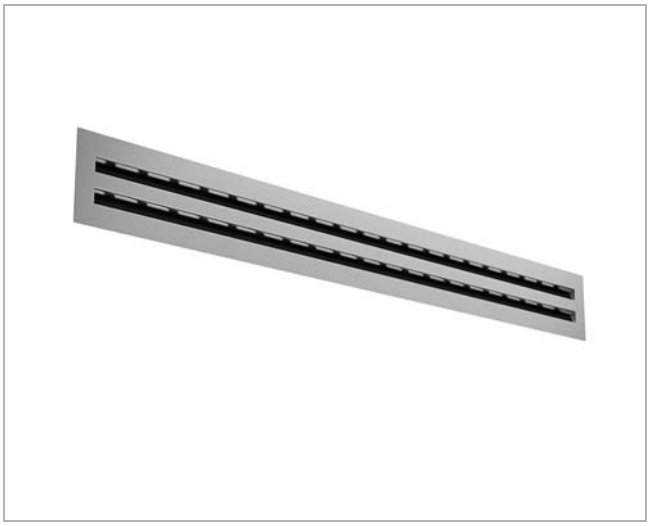
The slots can be mounted either in the ceiling or in the wall / skirting board. The best aero-technical qualities are obtained, when the slots are mounted in the middle of the room with a two-way supply of air. It is also a possibility to install the slots along the wall or along the facade, partly in order to make the installation seem as discrete as possible, and partly to free up the other part of the ceiling for other installations. The slots can be mounted in unbroken bands, where the best result is obtained when both active and passive - or exhaust-slots are combined in the same length.

Functionality

Lindab's slot diffuser MTL is available in two different widths, depending on the requirements for function or design. Furthermore, the corner pieces can be cut at an angle to suit. Normally the lengths are available in pieces up to 2 metres, but can be delivered in pieces up to 5 metres upon demand. If longer unbroken lengths are needed, the individual diffusers can be mounted with fixing-pipes. The plenum boxes STB and STU secure an even distribution and individual regulation of the slots.

MTL, slot diffuser.

Linear diffuser MTL



Description

MTL is a rectangular linear diffuser in aluminium. MTL is suitable for both supply and exhaust air. MTL is equipped with air guide baffles, making it possible to use MTL for horizontal supply air.

The horizontal dispersal pattern can be easily changed without the use of tools by turning the air guide baffle. The air guide baffle must be removed for vertical supply air.

MTL can be supplied in two versions, 15 mm or 19 mm, depending on capacity requirements or aesthetic considerations. MTL can be installed with plenum box STB/STU in order to achieve an even flow and individual adjustment.

MTL is normally supplied in lengths up to max. 2 m, but can be supplied on request up to 5 m. MTZ-1 is a 90º joint, when an aesthetically pleasing corner is required.

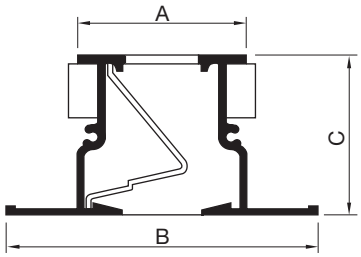
- Discrete appearance
- Used for both supply air and exhaust
- Horizontal and vertical supply air.

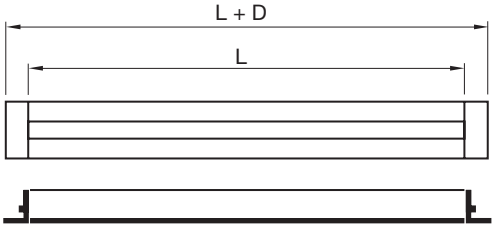
Maintenance

MTL can be removed to enable cleaning of internal parts or to gain access to the duct or box.
The visible parts of the diffuser can be wiped with a damp cloth.

Order code

Product	MTL	aa	b	cccc
Type				
Slot size	15 19			
No. of slots				
Length (L)				





Both ends are equipped with flanges.

Slot width: 15 mm

No. of slots	A mm	B mm	C mm	D mm
1	25	45	25	30
2	50	70	25	30
3	75	95	25	30
4	100	120	25	30

Cutout: A + 10 mm x L + 10 mm

Slot width: 19 mm

No. of slots	A mm	B mm	C mm	D mm
1	40	75	38	56
2	79	113	38	56
3	117	151	38	56
4	157	189	38	56

Cutout: A + 20 mm x L + 20 mm

Materials and finish

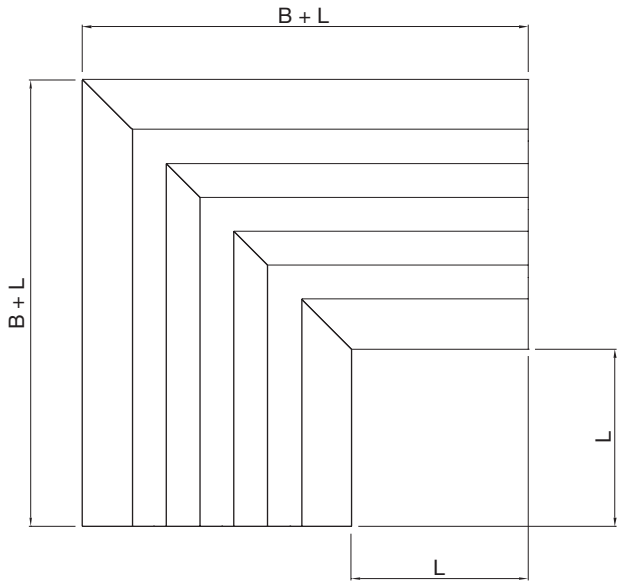
Slot: Aluminium
Standard finish: Natural anodised
Air guide baffle: Black ABS plastic

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

Linear diffuser MTL

Accessories

MTZ-1



MTZ-1 15	L	B	MTZ-1 19	L	B
1	150	45	1	150	75
2	150	70	2	150	113
3	150	95	3	150	151
4	150	120	4	150	189

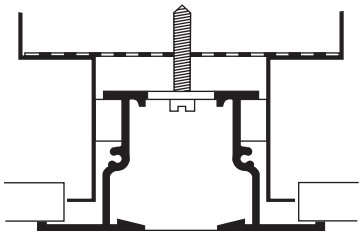
MTZ is supplied as two mitred ends (not one piece).

Order code

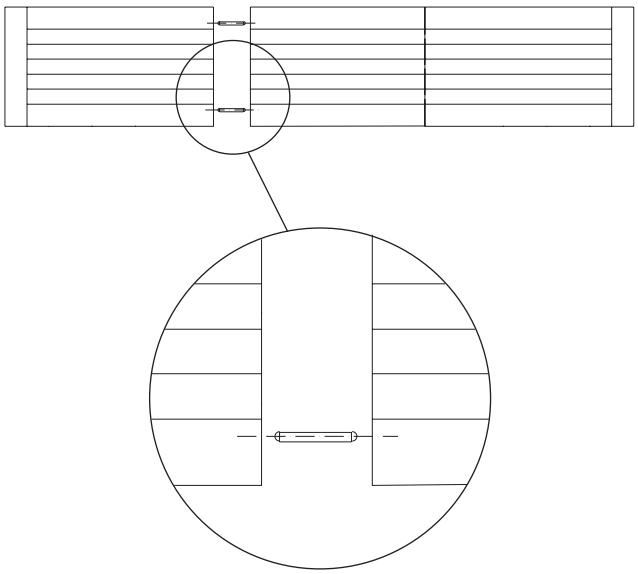
Product	MTZ-1	aa	b
Type			
Slot size	15 / 19		
No. of slots			

Installation in plenum box STB/STU

A self-tapping screw is fitted through the slot up into the perforated surface of the plenum box.



Installation of slots in continuous strips



The slots are often installed in continuous strips, where there is a need to join the slots, so that it resembles a single piece. In these cases, the full length must be specified when ordering, and the slots will be supplied adjusted to the total length. The outermost pieces will be equipped with end pieces, and the middle pieces will be supplied without end pieces. The slots are joined using the accompanying pins.

Linear diffuser MTL

Technical data

Capacity

Volume flow q_v [l/s] and [m^3/h], total pressure Δp_t[Pa], throw $l_{0.2}$ [m] and sound power level L_{WA} [dB(A)] can be seen in the diagrams.

Throw $l_{0.2}$

Throw $l_{0.2}$ [m] at a speed of 0.2 m/s and 1 m slot length can be seen in the diagrams. Correction of throw at other slot lengths: see table 1.

Table 1: Correction of throw

Slot length	250	500	1000	1500	3000
Correction factor	0,7	0,85	1	1,1	1,2

Frequency-related sound effect level

The sound effect level in the frequency band is defined as $L_{WA}+K_{ok}$.
K_{ok} values for MTL with box - see table 2.A and 2.B below.

Table 2.A: K_{ok} values [dB] for MTL with sloth width 15.

MTL-15-x + Box	Mean frequency Hz							
No. of slots (x)	63	125	250	500	1K	2K	4K	8K
1	8	3	6	-3	-10	-19	-27	-31
2	6	-1	5	-2	-8	-15	-23	-33
3	8	1	6	-2	-8	-17	-24	-31
4	6	-1	6	-2	-8	-15	-23	-31

Table 2.B: K_{ok} values [dB] for MTL with sloth width 19.

MTL-19-x + Box	Mean frequency Hz							
No. of slots (x)	63	125	250	500	1K	2K	4K	8K
1	11	8	6	-4	-12	-16	-23	-28
2	10	4	6	-4	-10	-15	-22	-28
3	8	2	7	-4	-11	-18	-24	-28
4	9	3	6	-3	-10	-16	-23	-27

Table 3: Correction for other slot lengths

Slot length	250	500	1000	1500	3000
correction [dB(A)]	-6	-3	0	2	5

Sound attenuation

Sound attenuation ΔL [dB] of MTL+STB including the end reflection, corresponding to the inlet diameter. See table 4 below.

Table 4: Sound attenuation ΔL [dB]

No. of slots	Mean frequency Hz							
	63	125	250	500	1K	2K	4K	8K
1	19	15	11	12	8	10	11	10
2	18	14	9	11	9	9	10	10
3	15	10	7	9	8	8	9	10
4	14	10	7	8	8	7	8	9

Balancing

Balancing data for control of air volume is available in a separate brochure.

Sample calculation:

Required data: Volume of air 200 m^3/h
Throw 6.5 m
Horizontal supply air
Slot length 1.5 m, i.e. 133 [(m^3/h)/m]

Solution: MTL 19

2-slot version is selected:
Throw according to diagram: 5.8 m

Throw correction according to table 1:
1.1 x 5.8 = 6.4 m
Pressure loss and sound level according to diagram:
Open damper: 13 Pa, 15 dB(A)
Closed damper: 38 Pa, 22 dB(A)

Correction according to table 3:

Open damper: 15 + 2 = 17 dB(A)
Closed damper: 22 + 2 = 24 dB(A)

Linear diffuser MTL

Technical data

Capacity

Volume flow q_v [l/s] and [m^3/h], total pressure Δp_t[Pa], throw $l_{0.2}$ [m] and sound power level L_{WA} [dB(A)] can be seen in the diagrams.

Throw $l_{0.2}$

Throw $l_{0.2}$ [m] at a speed of 0.2 m/s and 1 m slot length can be seen in the diagrams. Correction of throw at other slot lengths: see table 1.

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Slot length	250	500	1000	1500	3000
Correction factor	0,7	0,85	1	1,1	1,2

Frequency-related sound effect level

The sound effect level in the frequency band is defined as $L_{WA}+K_{ok}$.
K_{ok} values for MTL with box - see table 2.A and 2.B below.

Table 2.A: K_{ok} values [dB] for MTL with sloth width 15.

MTL-15-x + Box	Mean frequency Hz							
No. of slots (x)	63	125	250	500	1K	2K	4K	8K
1	8	3	6	-3	-10	-19	-27	-31
2	6	-1	5	-2	-8	-15	-23	-33
3	8	1	6	-2	-8	-17	-24	-31
4	6	-1	6	-2	-8	-15	-23	-31

Table 2.B: K_{ok} values [dB] for MTL with sloth width 19.

MTL-15-x + Box	Mean frequency Hz							
No. of slots (x)	63	125	250	500	1K	2K	4K	8K
1	11	8	6	-4	-12	-16	-23	-28
2	10	4	6	-4	-10	-15	-22	-28
3	8	2	7	-4	-11	-18	-24	-28
4	9	3	6	-3	-10	-16	-23	-27

Table 3: Correction for other slot lengths

Slot length	250	500	1000	1500	3000
correction [dB(A)]	-6	-3	0	2	5

Sound attenuation

Sound attenuation ΔL [dB] of MTL+STB including the end reflection, corresponding to the inlet diameter. See table 4 below.

Table 4: Sound attenuation ΔL [dB]

No. of slots	Mean frequency Hz							
	63	125	250	500	1K	2K	4K	8K
1	19	15	11	12	8	10	11	10
2	18	14	9	11	9	9	10	10
3	15	10	7	9	8	8	9	10
4	14	10	7	8	8	7	8	9

Balancing

Balancing data for control of air volume is available in a separate brochure.

Sample calculation:

Required data: Volume of air 200 m^3/h
Throw 6.5 m
Horizontal supply air
Slot length 1.5 m, i.e. 133 [(m^3/h)/m]

Solution: MTL 19

2-slot version is selected:
Throw according to diagram: 5.8 m

Throw correction according to table 1:
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Pressure loss and sound level according to diagram:
Open damper: 13 Pa, 15 dB(A)
Closed damper: 38 Pa, 22 dB(A)

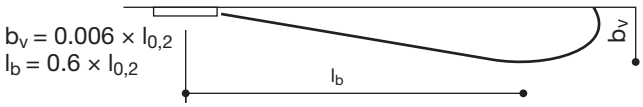
Correction according to table 3:

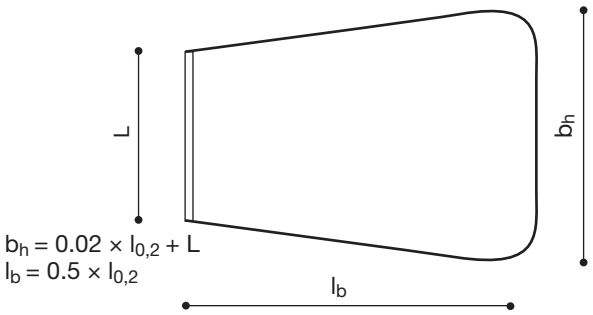
Open damper: 15 + 2 = 17 dB(A)
Closed damper: 22 + 2 = 24 dB(A)

Linear diffuser MTL

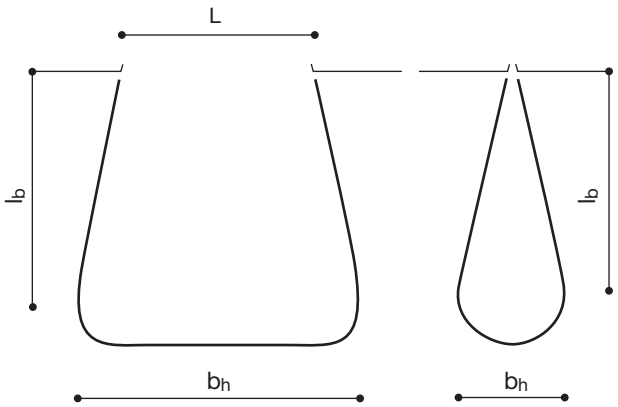
Technical data

Horizontal supply air



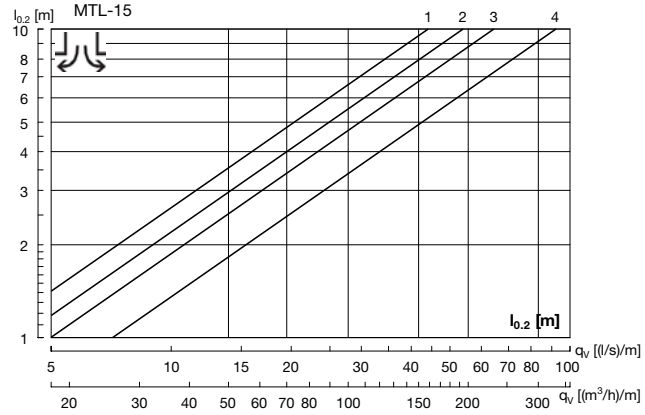


Vertical supply air

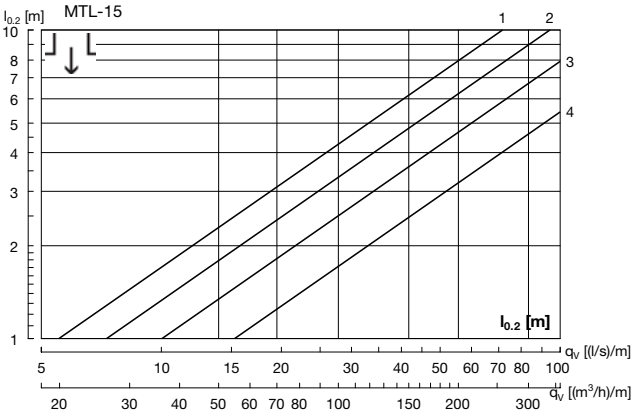


Throw MTL 15

Horizontal

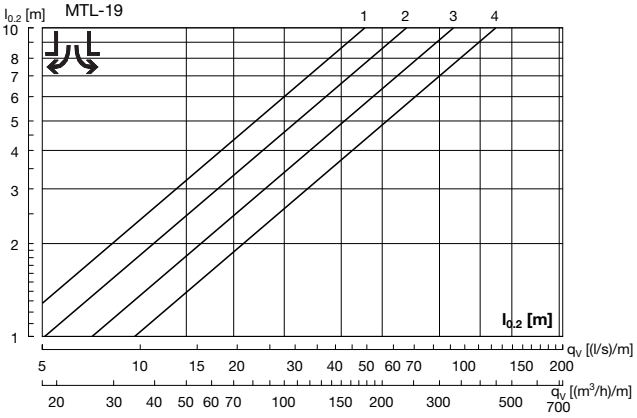


Vertical

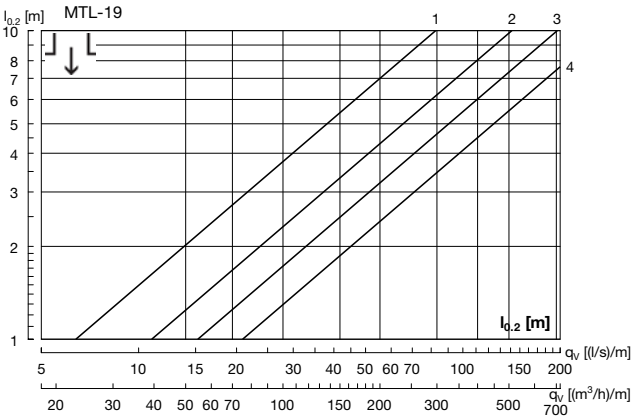


Throw MTL 19

Horizontal



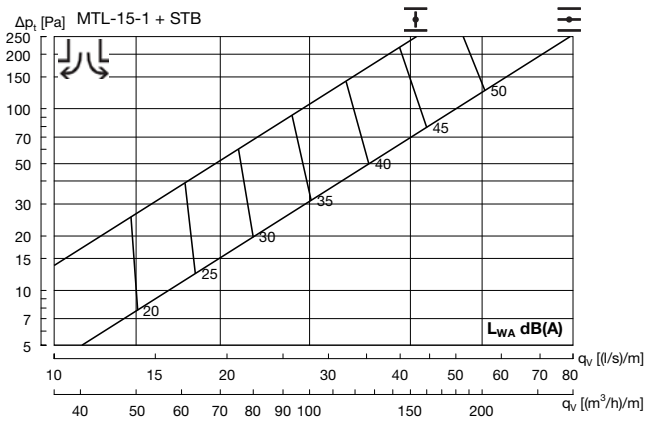
Vertical

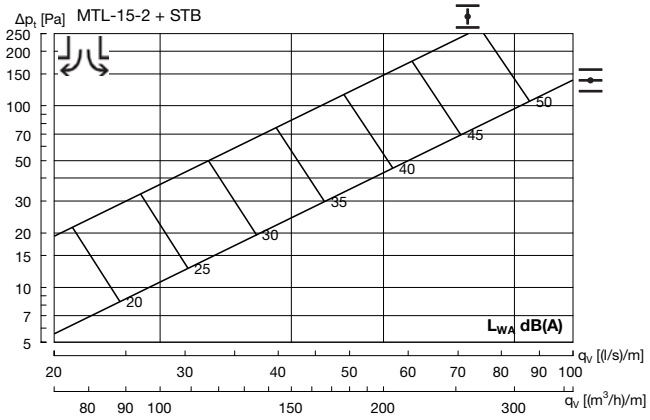


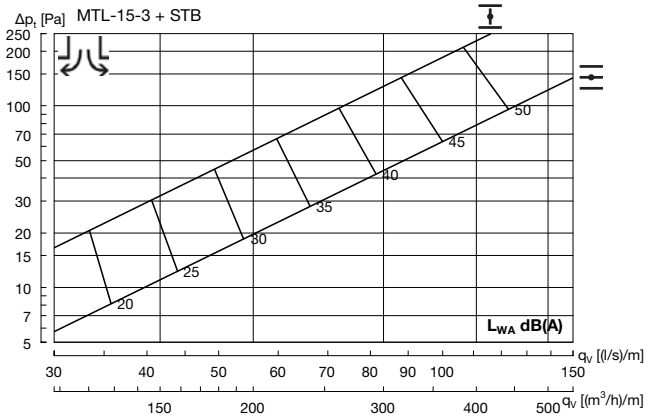
Linear diffuser

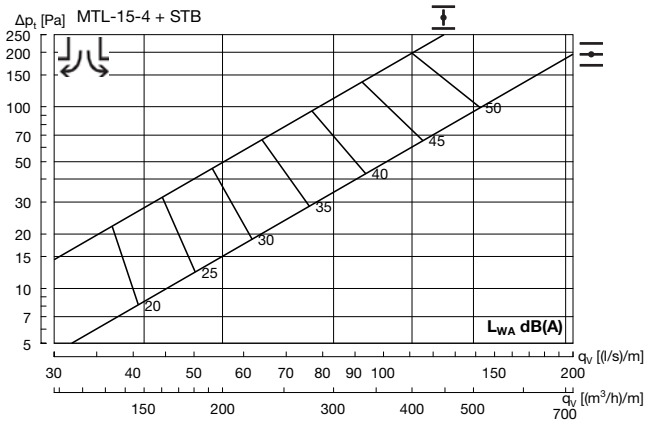
MTL

Horizontal-supply

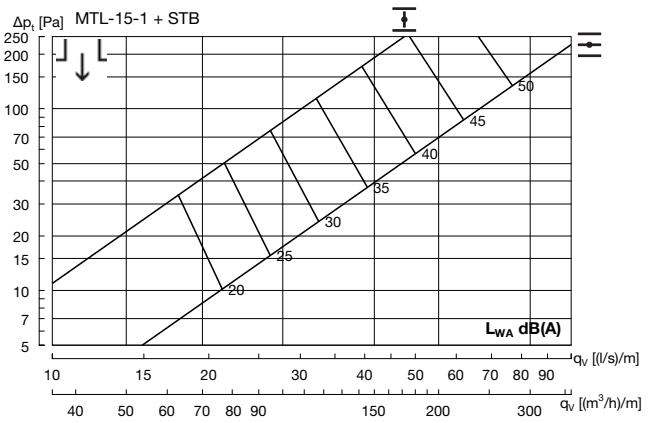


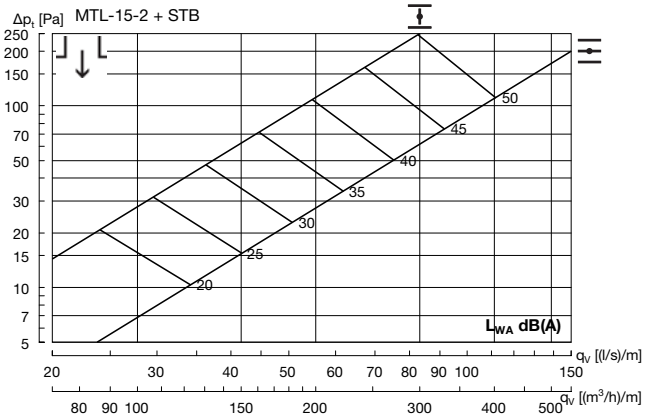


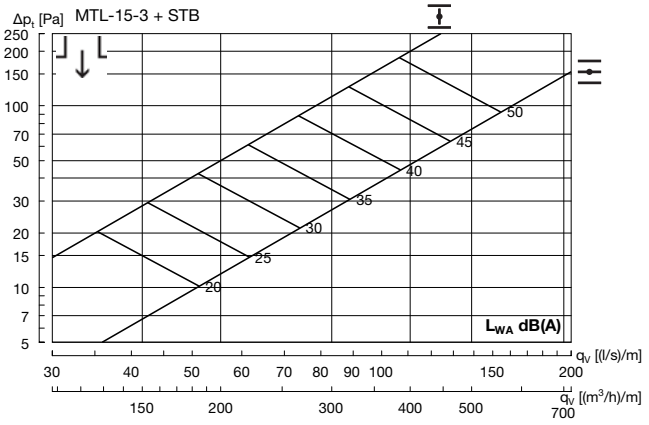


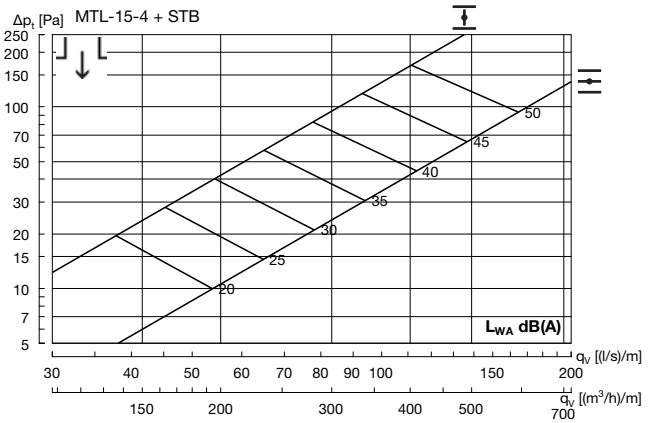


Vertical-supply



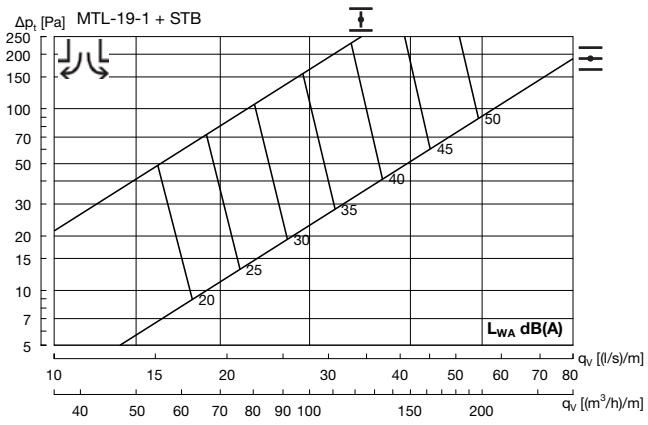


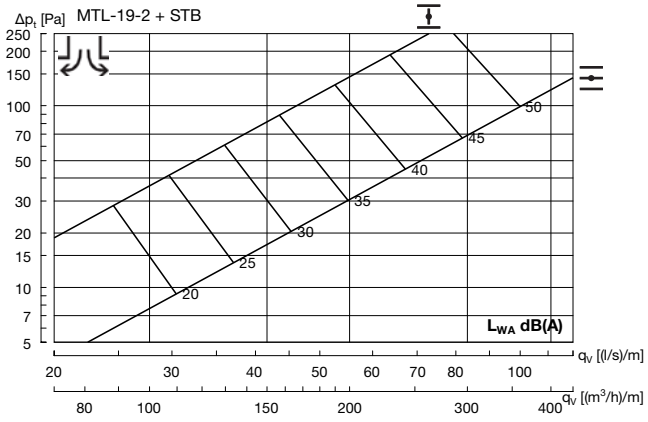


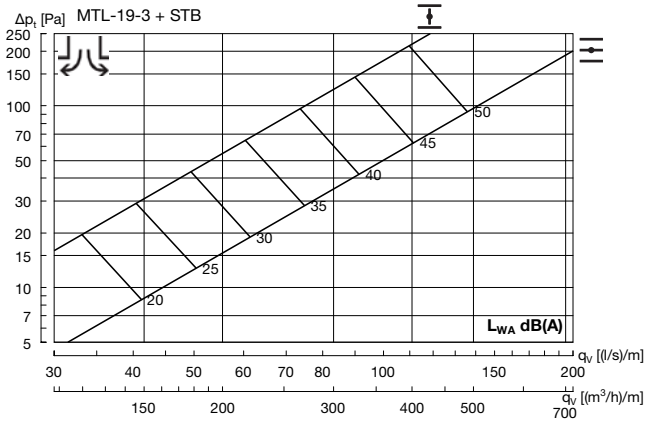


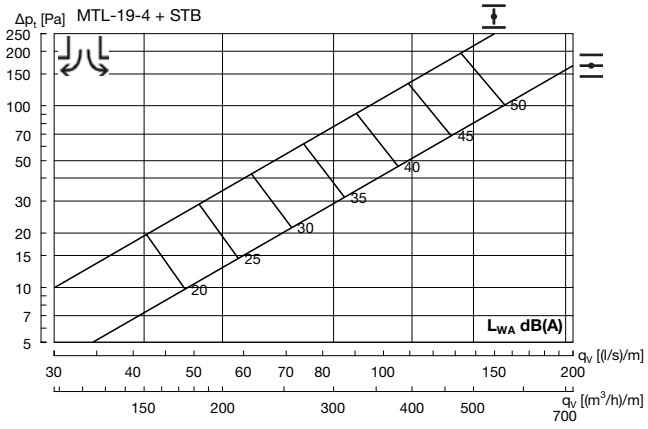
Linear diffuser MTL

Horizontal-supply

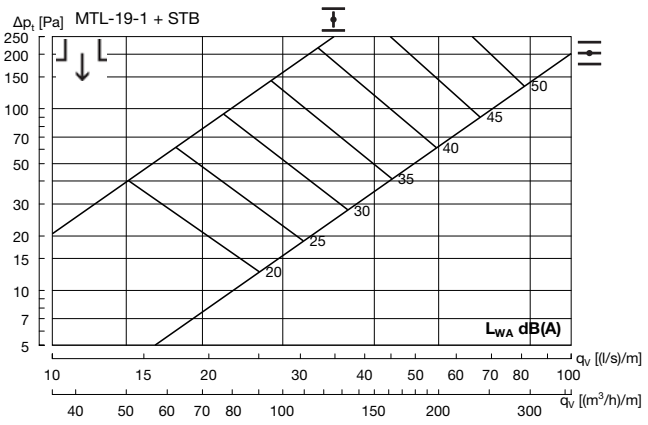


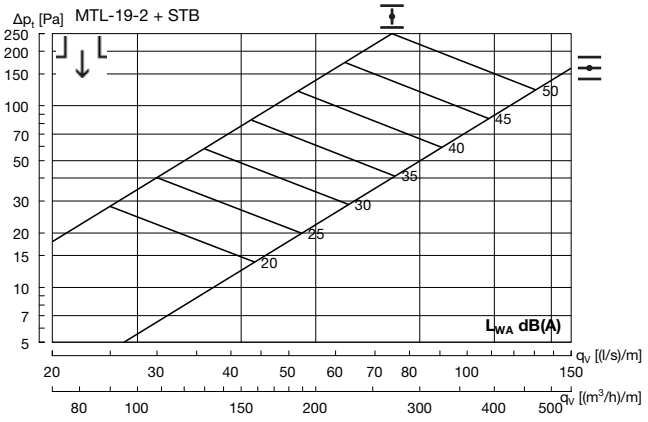


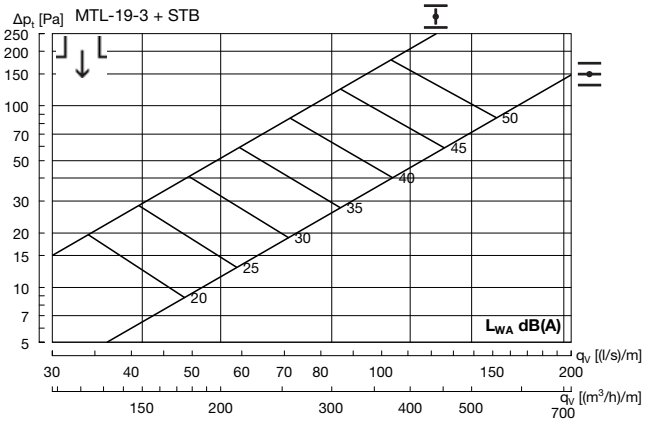


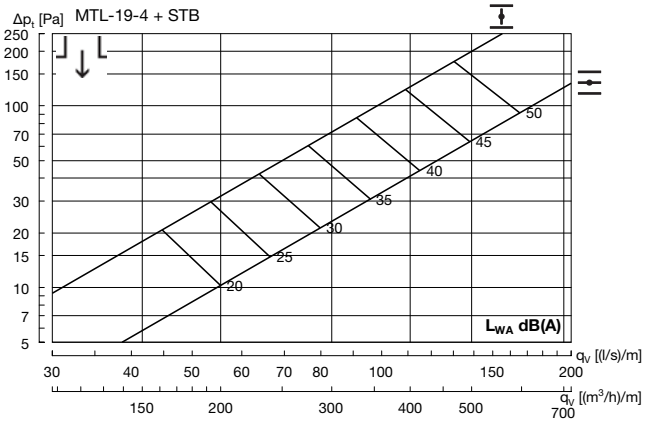


Vertical-supply





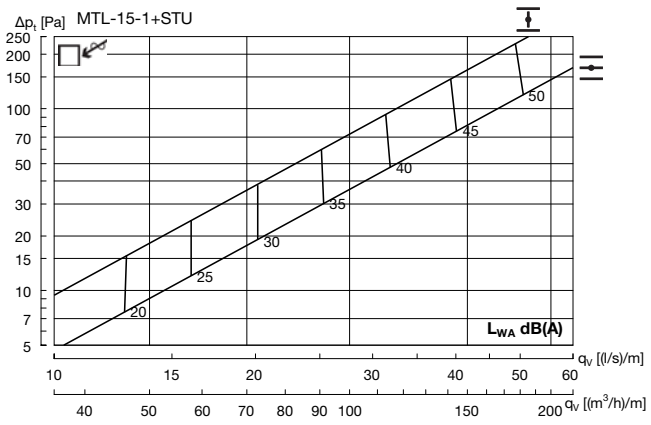


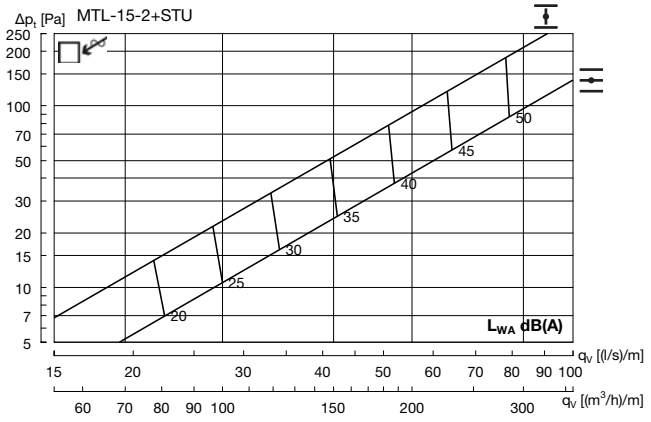


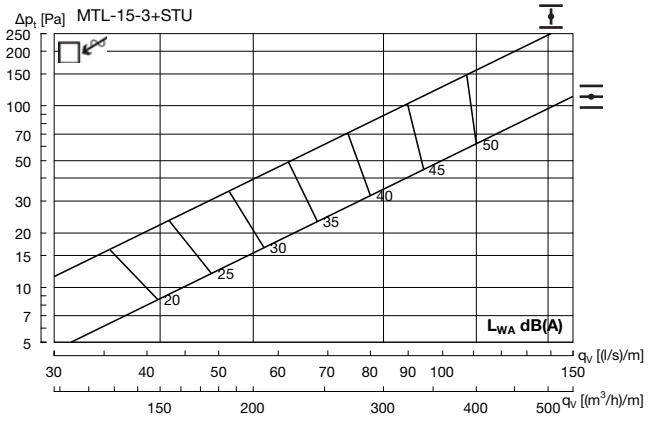
Linear diffuser

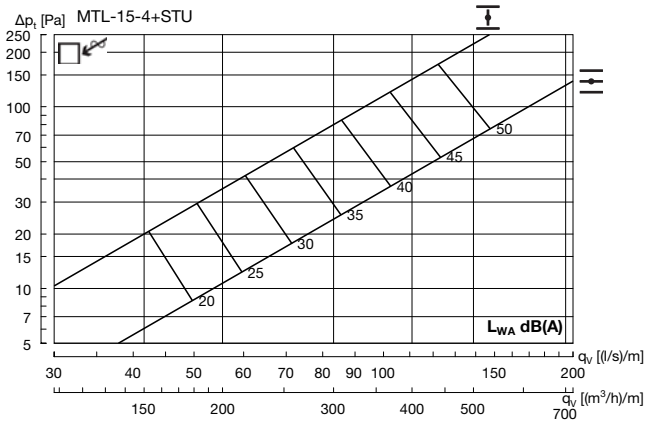
MTL

Exhaust air- MTL 15

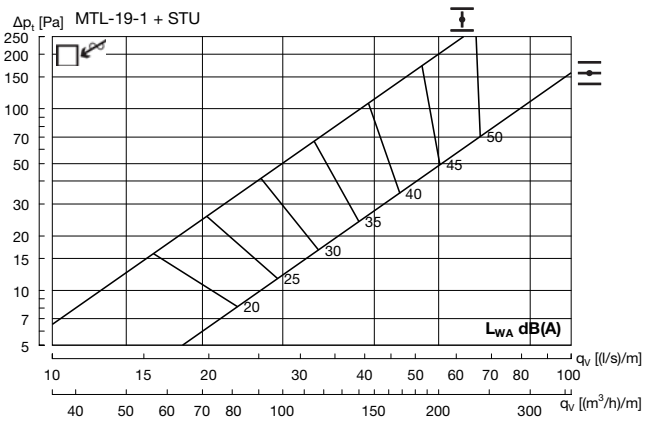


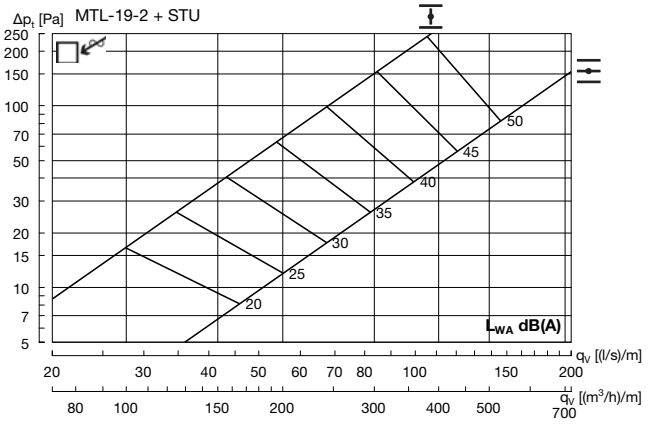


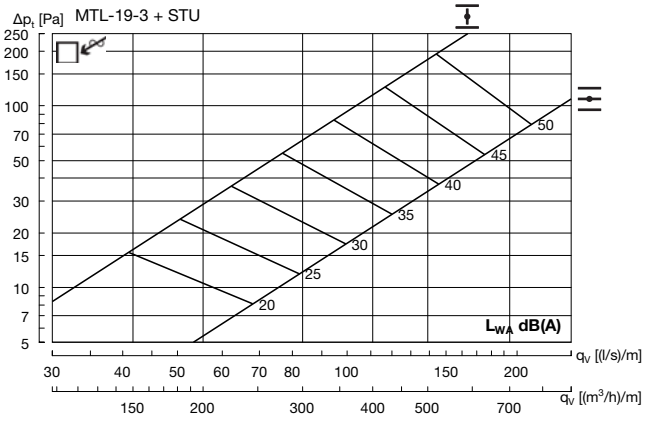


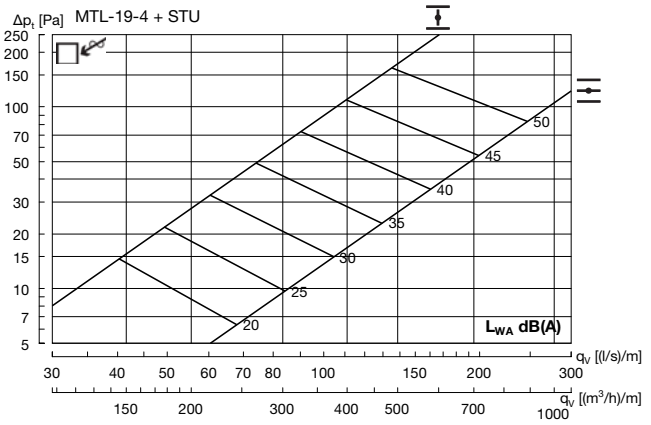


Exhaust air- MTL 19









Plenum box STB/STU

Description

STB is a rectangular plenum box for supply air for linear diffuser, MTL. The plenum box ensures even distribution over the linear diffuser. STB is equipped with a damper and an orifice plate to ensure individual regulation, and is supplied with acoustic insulation.

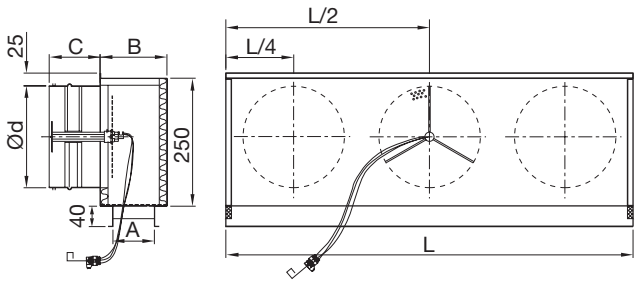
STU is a rectangular plenum box for air exhaust for linear diffuser, MTL. STU has the same properties as STB.

- Ensures even air distribution over the linear diffuser.
- Acoustically insulated.
- Supplied with damper and measuring device

Order code

Product	STB/STU	a	ba	ccc
Type				
Slot size	15 / 19			
No. of slots				
Length				

Dimensions



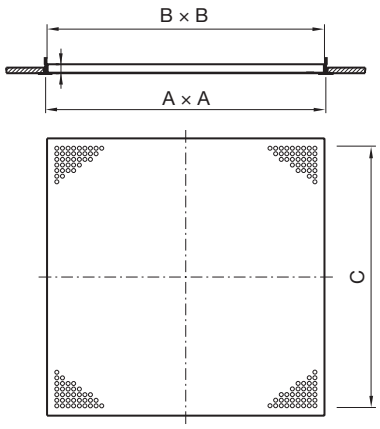
Box type / Length					0-1199		1200-1799		1800-2000	
	Slot size									
	15		19							
No. of slots	A	B	A	B	Ød	No.	Ød	No.	Ød	No.
1	26	90	41	91	125	1	160	1	125	2
2	51	100	80	130	160	1	200	1	160	2
3	76	125	118	168	200	1	200	2	200	2
4	101	150	158	208	200	1	200	2	200	2

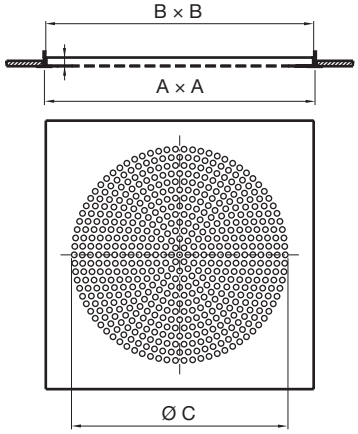
C dimension: STB = 100 mm
STU = 200 mm

Materials and finish

Plenum box:	Galvanised steel
Standard finish:	Galvanised steel
Insulation:	Melamine foam plastic

Perforated exhaust plate PKY/PCY





Description

PKY/PCY is a “diffuser” without duct connection for installation in T-rail ceilings. PKY/PCY is used in situations where air is to be exhausted over a suspended ceiling, and a sufficient opening is required in the ceiling for the air to pass through.

- Architecturally and financially attractive “diffuser” solution for exhaust of air over a suspended ceiling
- Can be adapted for many different types of ceiling
- Low pressure loss and large air capacity

Maintenance

The visible parts of the diffuser can be wiped with a damp cloth.

Materials and finish

Material:	Galvanised steel
Standard finish:	Powder-coated
Standard colour:	RAL 9010, gloss 30

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

Order code

Product	**PKY**	**aaa**
Type		
Size		

Ceiling system - see introductory summary.

Dimensions

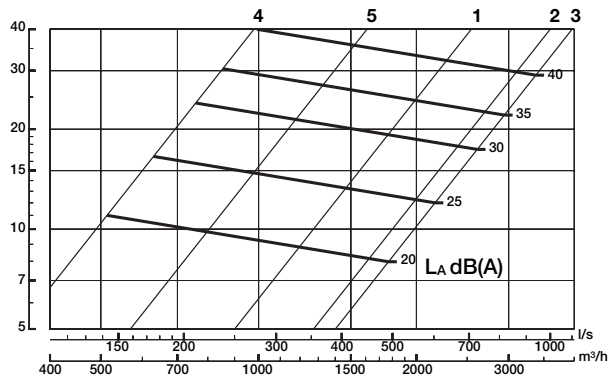
PKY

A Size	B mm	C mm	Free area m^2	Curve no.	Weight kg
500	495	467	0,085	1	1,3
600	595	567	0,125	2	1,8
625	620	597	0,138	3	1,9

PCY

A Size	B mm	C mm	Free area m^2	Curve no.	Weight kg
500	495	400	0,043	4	1,6
600	595	490	0,064	5	2,1
625	620	490	0,064	5	2,2

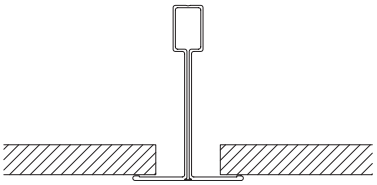
Pressure loss [Pa]



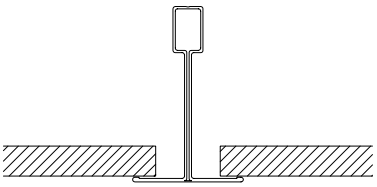
Ceiling tile adaption

Overview

1. T24/T15 Lay-in **278**

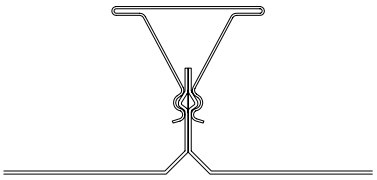


2. T24/T15 Lay-in not cleanable **279**

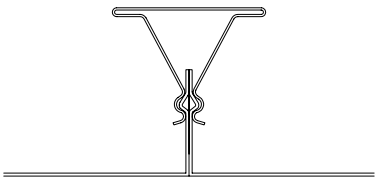


3. Permanent ceiling **279**

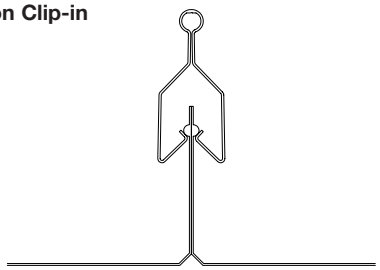
4. Dampa Clip-in bevelled edge **280**



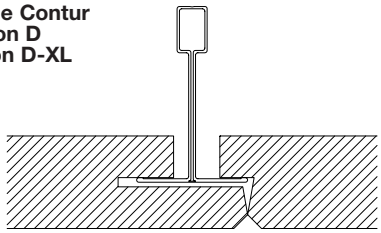
5. Dampa Clip-in square edge **281**



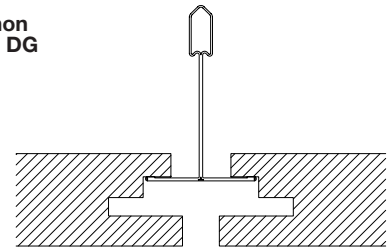
6. Luxalon Clip-in **282**



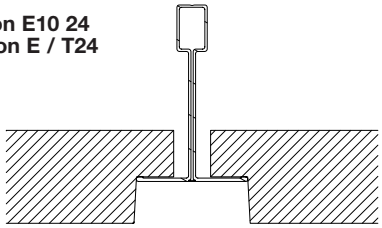
7. Danotile Contur
Ecophon D
Rockfon D-XL **283**



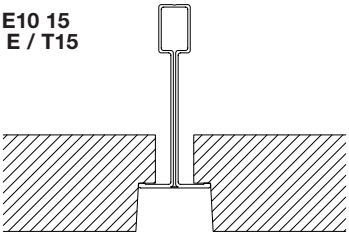
8. Ecophon
Focus DG **284**



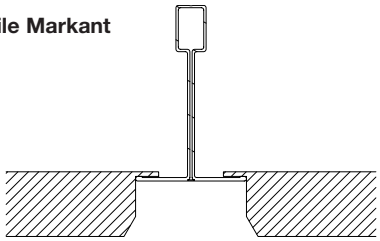
9. Rockfon E10 24
Ecophon E / T24 **285**



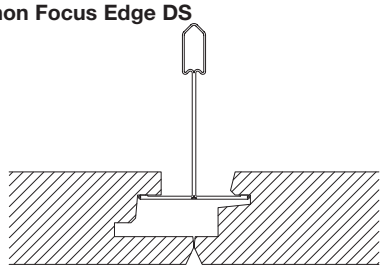
10. Rockfon E10 15
Ecophon E / T15 **286**



11. Danotile Markant **287**



14. Ecophon Focus Edge DS **288**



Ceiling tile adaption

Versio, Competence centre, Hobro.

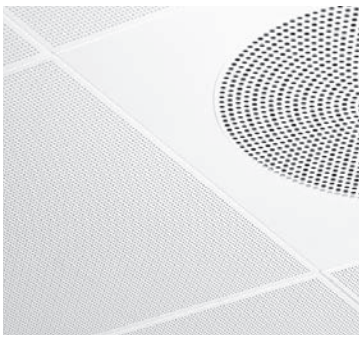
Ceiling systems

A harmonic and aesthetic ceiling solution with beautifully integrated components is a must in modern constructions. The individual components themselves define the appearance of the final solution. Lindab contributes to the holism by adapting the diffusers to most 600x600 ceiling systems. In this way the holism of the solution is maintained, and the final result will become just as planned.

Ceiling adaption

Most of Lindabs ceiling diffusers can be adapted to 600x600 ceiling systems. The individual diffusers are adapted to the ceiling system directly in the grille box, or by using adapted module plates / frames, depending on which ceiling system is chosen. The following pages show Lindab´s standard offering; both in terms of face plates and ceiling tile adaptions.

In the back of this chapter is an overview of adapted moduleplates.



PC7 diffuser.

Ceiling tile adaption

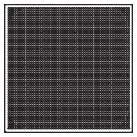
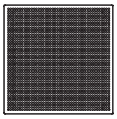
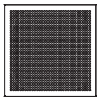
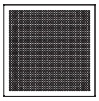
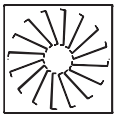
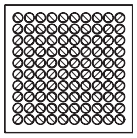
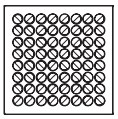
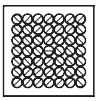
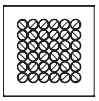
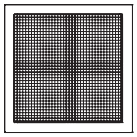
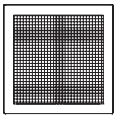
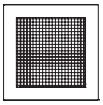
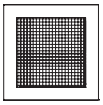
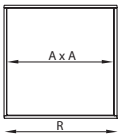
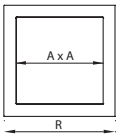
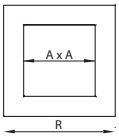
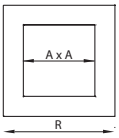
Design

See Comfort and design

Ceiling systems

1, 3, 7, 8, 9, 10, 11, 14

Product

	Perforated	**Pattern 600**	**Pattern 500**	**Pattern 400**	**Pattern 300**
PS	**1 - 11**				
	Swirl	**Pattern 600**	**Pattern 500**	**Pattern 400**	**Pattern 300**
RS	**14 - 16**				
	Nozzles	**Pattern 600**	**Pattern 500**	**Pattern 400**	**Pattern 300**
NS	**19**				
	Grid	**Pattern 600**	**Pattern 500**	**Pattern 400**	**Pattern 300**
GS	**23**				
	Frame	**Pattern 600**	**Pattern 500**	**Pattern 400**	**Pattern 300**
R					

		Pattern							
		600		500		400		300	
No.	**Ceiling type**	R mm	A x A mm	R mm	A x A mm	R mm	A x A mm	R mm	A x A mm
1	**Lay-in 24/15 T-rack**	595	564	595	464	595	383	595	383
3	**Permanent ceiling**	595	564	495	464	415	383	415	383
7	**Hidden T-bar**	*	599	599	464	599	383	599	383
8	**Partially visible t-rack T24**	*	592	592	464	592	383	592	383
9	**T24 E/markant**	*	575	595	464	595	383	595	383
10	**T15 E/markant**	*	584	584	464	584	383	584	383
11	**T24 Markant**	*	575	575	464	575	383	575	383
14	**Ecophon Focus edge DS**	*	599	599	464	599	383	599	383
Connection diffuser/box		Ød mm	U mm	Ød mm	U mm	Ød mm	U mm	Ød mm	U mm
Grille box type V		315	575	250	475	200	395	160	395
Plenum box type H		250/315	575	200	475	160	395	125	395
Rectangular connection		A x B mm	U mm	A x B mm	U mm	A x B mm	U mm	A x B mm	U mm
Plenum box type R		498 x 98	575	398 x 98	475	298 x 98	395	198 x 98	395

*** shows solutions without fame, A x A shows face plate measurement in mm, R shows measurements on frame around the face plate. U shows recess.**

Ceiling tile adaption

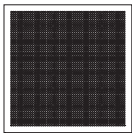
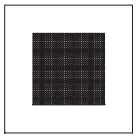
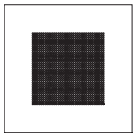
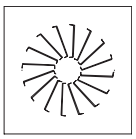
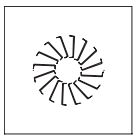
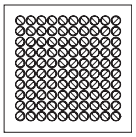
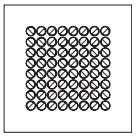
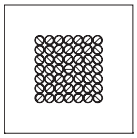
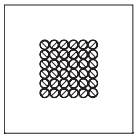
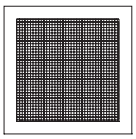
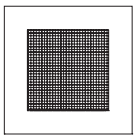
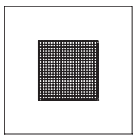
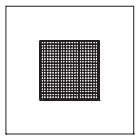
Design

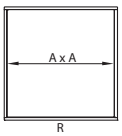
See Comfort and design

Ceiling systems

2, 4, 5, 6

Product

	Perforated	Pattern 600	Pattern 500	Pattern 400	Pattern 300
PS	1 - 11				
	Swirl	**Pattern 600**	**Pattern 500**	**Pattern 400**	**Pattern 300**
RS	14 - 16				
	Nozzles	**Pattern 600**	**Pattern 500**	**Pattern 400**	**Pattern 300**
NS	19				
	Grid	**Pattern 600**	**Pattern 500**	**Pattern 400**	**Pattern 300**
GS	23				



A x A shows face plate dimension, A x A is the outer dimension of all face plates.

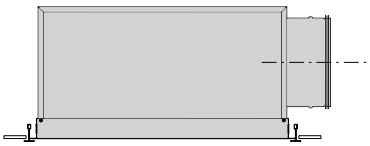
		Pattern			
		600	**500**	**400**	**300**
No.	**Ceiling type**	A x A mm	A x A mm	A x A mm	A x A mm
2	**Lay-in 24/15 T-rack not cleanable**	595	595	595	595
4	**Clip-in bevelled edge**	600	600	600	600
5	**Clip-in square edge**	600	600	600	600
6	**Clip-in**	600	600	600	600
Connection diffuser/box		Ød mm	Ød mm	Ød mm	Ød mm
Grille box type V		315	250	200	160
Plenum box type H		250/315	200	160	125
Rectangular connection		A x B mm	A x B mm	A x B mm	A x B mm
Plenum box type R		498 x 98	398 x 98	298 x 98	198 x 98

A x A shows face plate measurements in mm

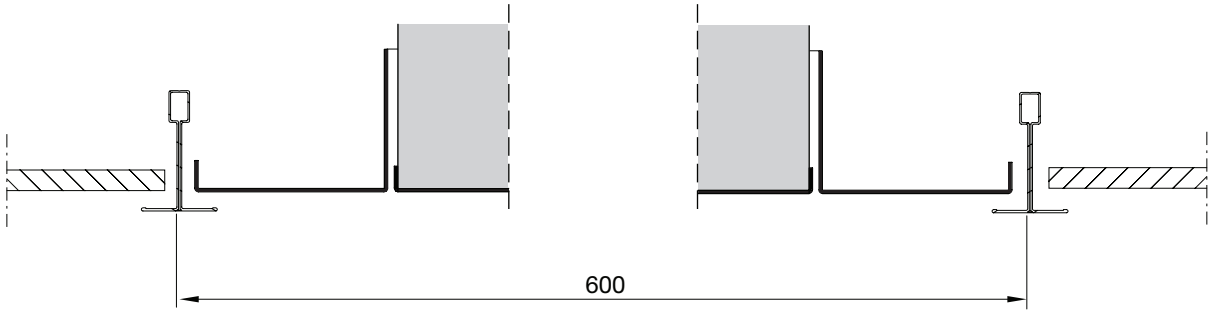
Ceiling tile adaption

1. Ceiling adaption T24/T15 Lay-in

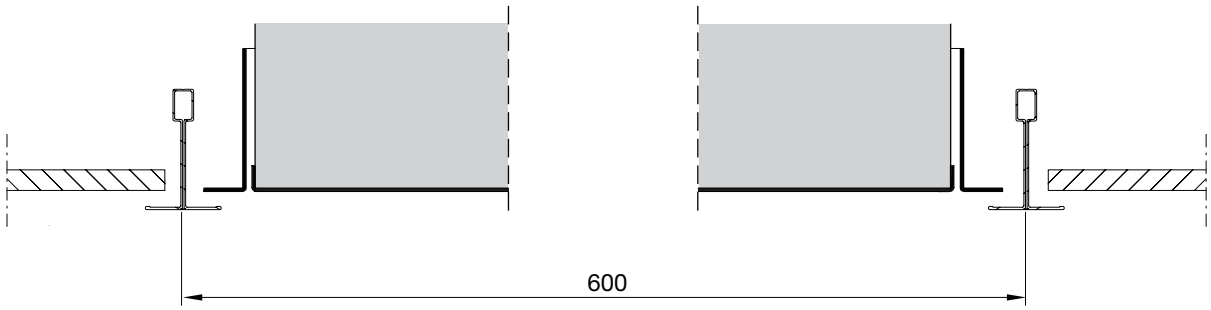
Lindab´s ceiling diffusers adapted to T 24 / T15 Lay-in is mounted directly in the ceiling system as depicted in the sketches. The diffuser is delivered with a detachable face plate, so full acess to the plenum box and the air duct is possible.



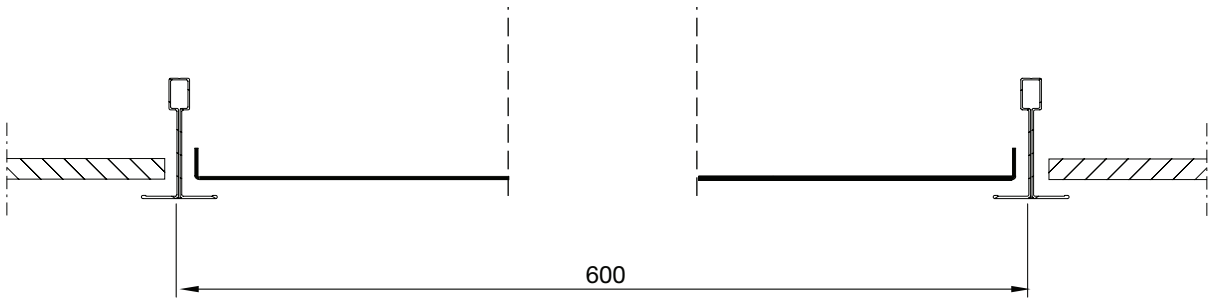
Sketch Versio- V, H, R pattern 300,400,500
(PBB mounting brackets not included, can be ordered separately.)



Sketch Versio- V, H, R pattern 600
(PBB mounting brackets not included, can be ordered separately.)



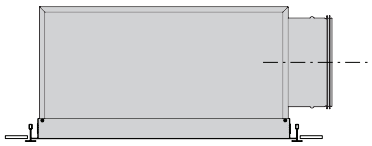
Sketch moduleplate type LM- Integra/Formo



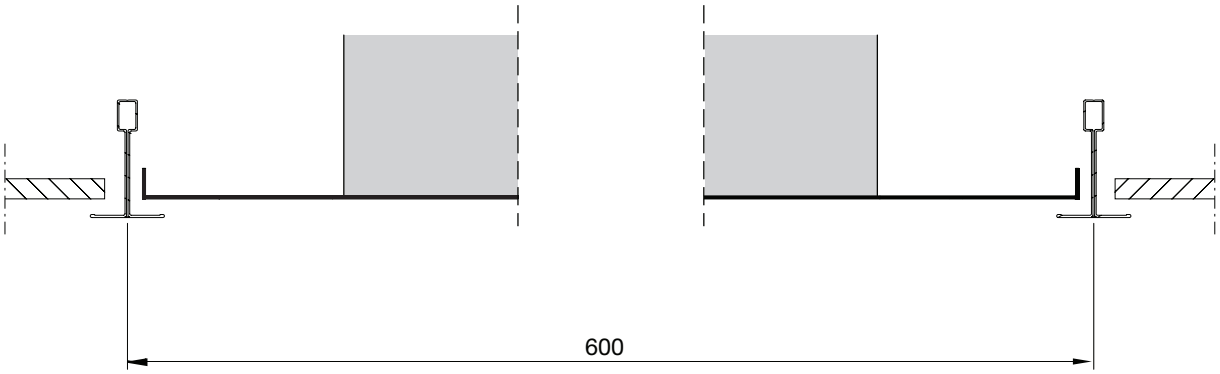
Ceiling tile adaption

2. Ceiling adaption T24/ T15 Lay-in not cleanable

Lindab´s diffuser adapted to T 24 / T15 Lay-in is mounted directly in the ceiling system, as depicted on the sketches. The face plate is in one piece and cannot be detached unless the diffuser is demounted from the rack-system.

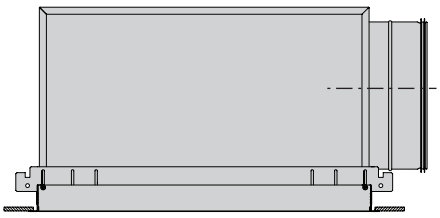


Sketch Versio- V, H, R all sizes
(PBB mounting brackets not included, can be ordered separately.)

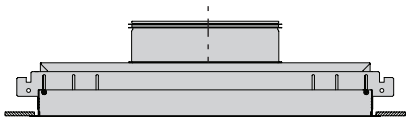


3. Permanent ceiling

Lindabs diffuser adapted to permanent ceiling is cut directly into the ceiling construction. The diffuser can be fastened with Lindabs different types of mounting brackets, see product pages for more details.

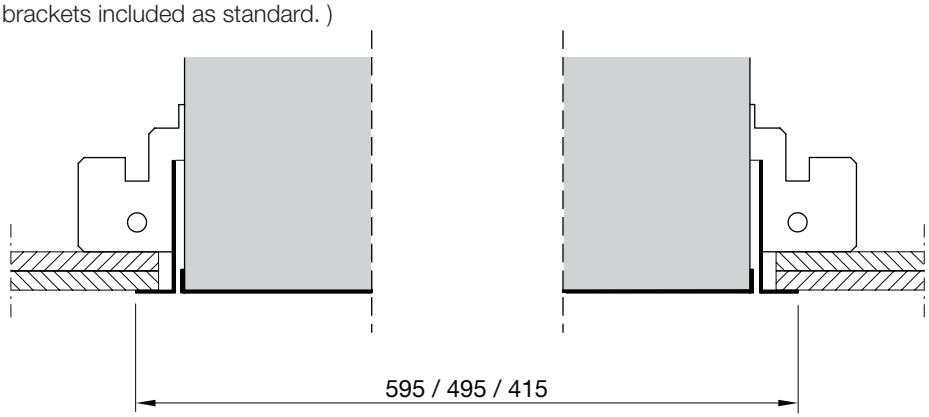


Plenum box type H including mounting bracket type PBB



Grille box type V including mounting bracket type PBB

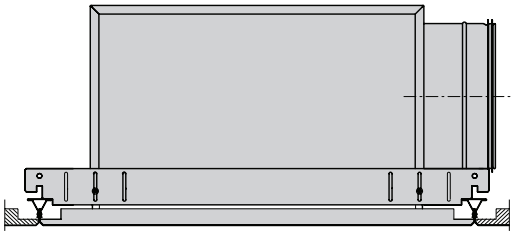
Sketch Versio- V, H, R all sizes
(PBB mounting brackets included as standard.)



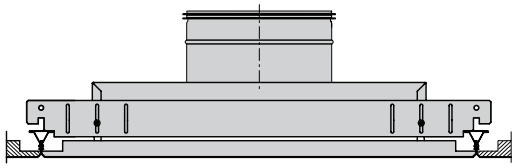
Ceiling tile adaption

4. Dampa Clip-in bevelled edge

Lindab´s diffuser adapted to Dampa Clip-in bevelled edge is mounted directly in the ceiling system, as depicted in the sketches.

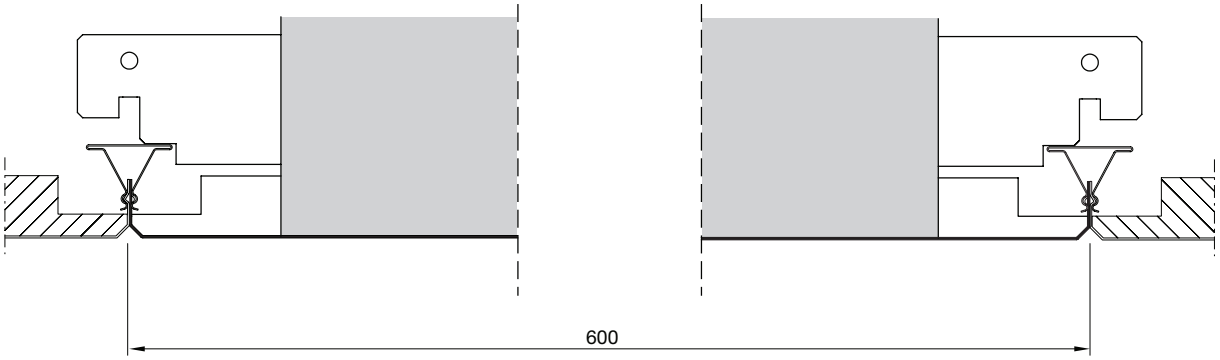


Plenum box type H including mounting bracket type PBB

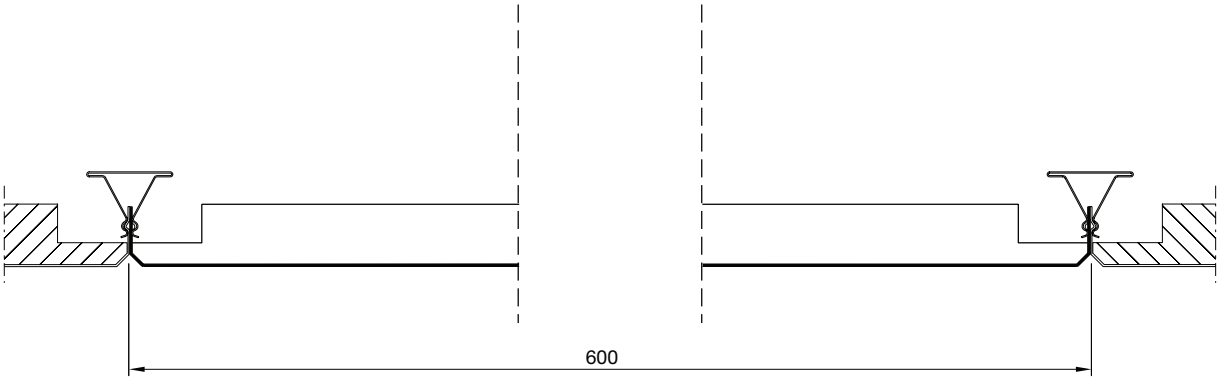


Grille box type V including mounting bracket type PBB

Sketch Versio- V, H, R all sizes
(PBB mounting brackets included as standard.)



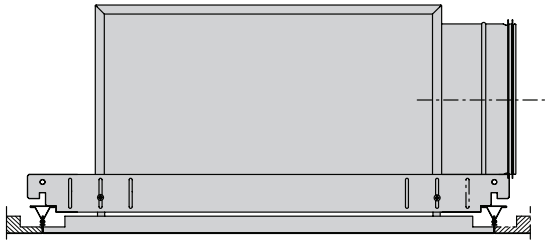
Sketch moduleplate type LM- Integra/Formo



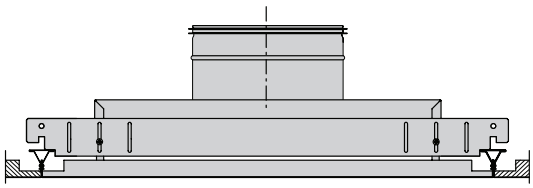
Ceiling tile adaption

5. Dampa Clip-in square edge

Lindab´s diffuser adapted to Dampa Clip-in square edge is mounted directly in the ceiling system, as depicted in the sketches.

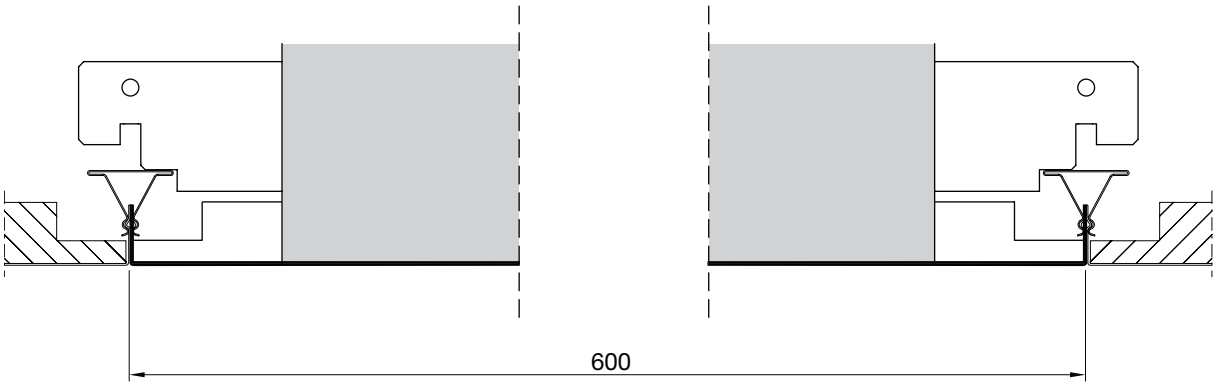


Plenum box type H including mounting brackets type PBB

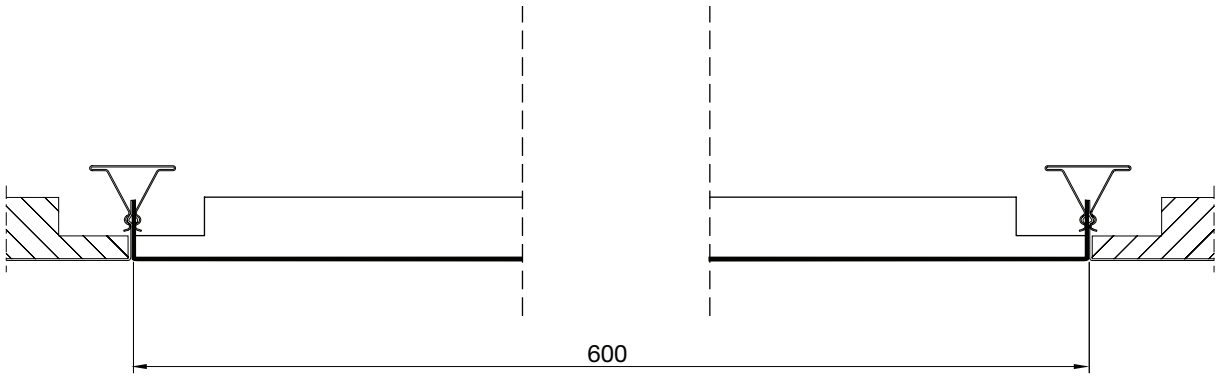


Grille box type V including mounting bracket type PBB

Sketch Versio- V, H, R all sizes
(PBB mounting brackets included as standard.)



Sketch moduleplate type LM- Integra/Formo

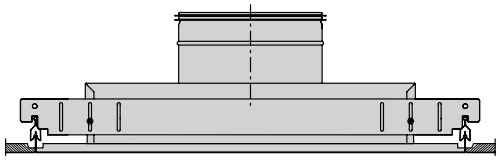


Ceiling tile adaption

6. Luxalon Clip-in

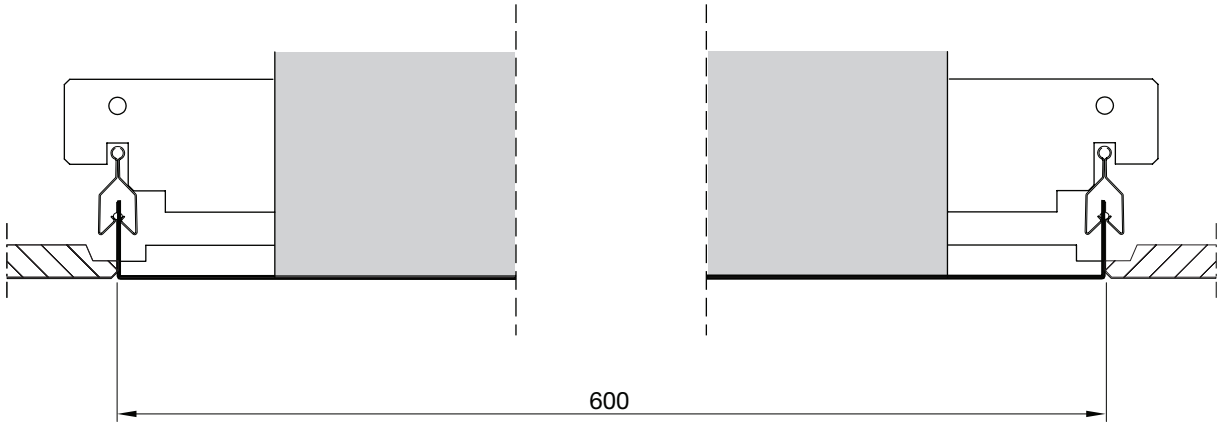
Lindab´s diffuser adapted to Luxalon Clip-in is mounted directly in the ceiling system, as depicted in the sketches.

Plenum box type H including mounting bracket type PBB

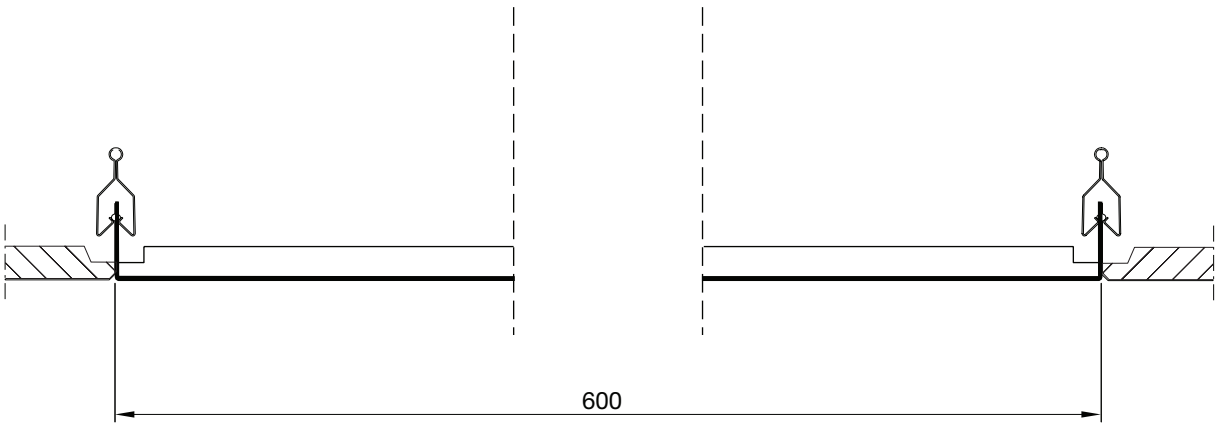


Grille box type V including mounting bracket type PBB

Sketch Versio- V, H, R all sizes
(PBB mounting brackets included as standard.)



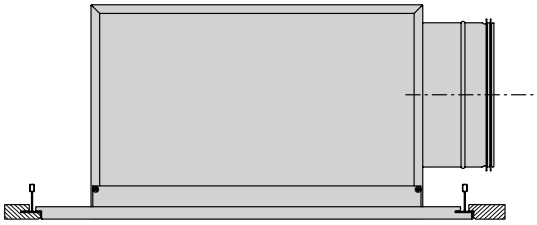
Sketch moduleplate type LM- Integra/Formo



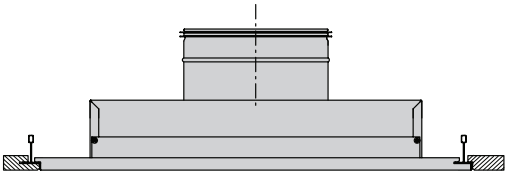
Ceiling tile adaption

7. Danotile Contur, Ecophon D and Rockfon D-XL

Lindab´s diffuser adapted to the above mentioned ceiling systems, is mounted directly in the ceiling system, as depicted in the sketches.

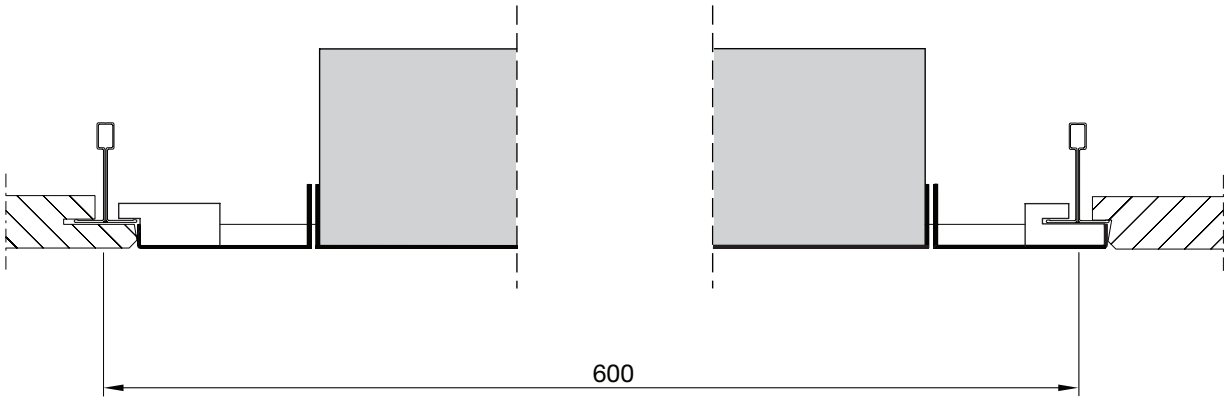


Plenum box type H

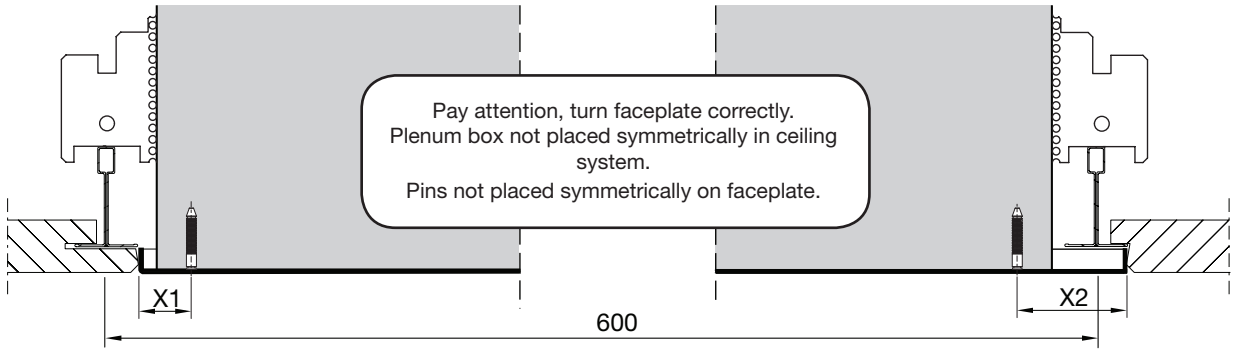


Grille box type V

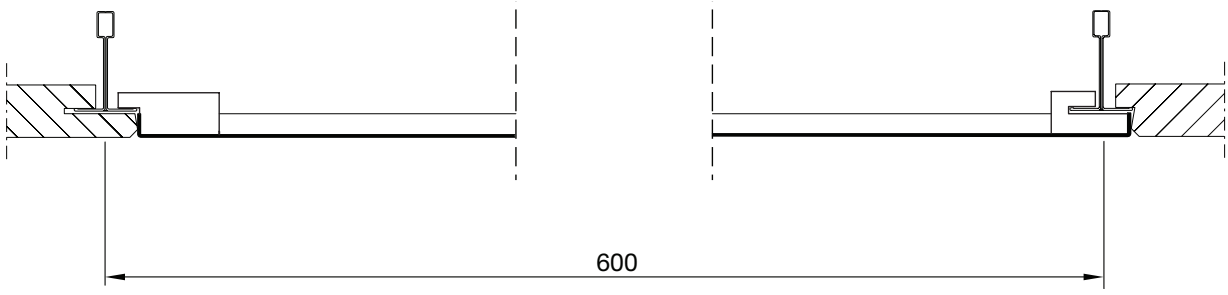
Sketch Versio- V, H, R pattern 300, 400, 500
(PBB mounting brackets not included, can be ordered separately.)



Sketch Versio- V, H, R pattern 600
(PBB mounting brackets included as standard.)



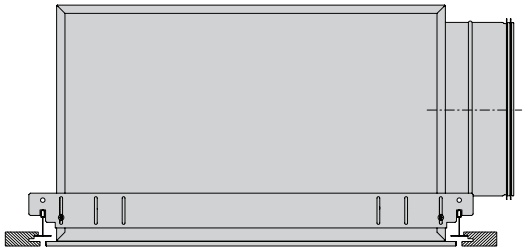
Sketch moduleplate type LM- Integra/Formo



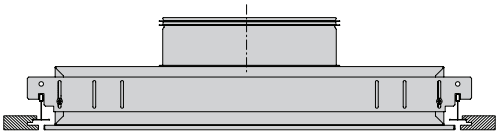
Ceiling tile adaption

8. Ecophon Focus DG

Lindab´s diffuser adapted to Ecophon Focus DG ceiling systems are mounted directly in the ceiling system, as depicted in the sketches.

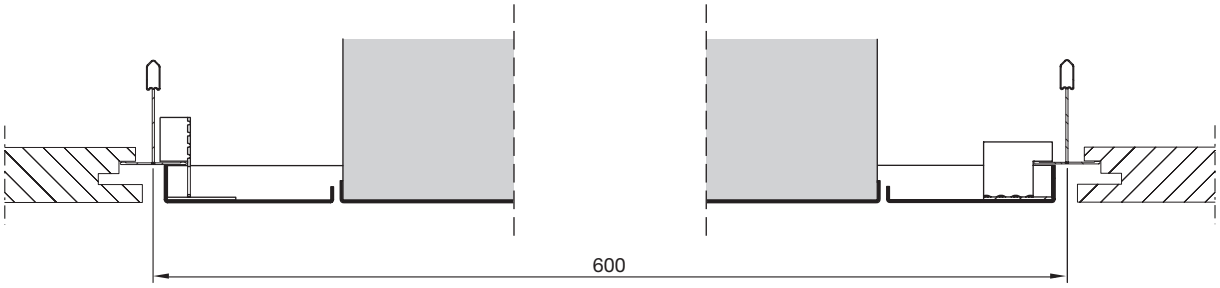


Plenum box type H including mounting bracket type PBB

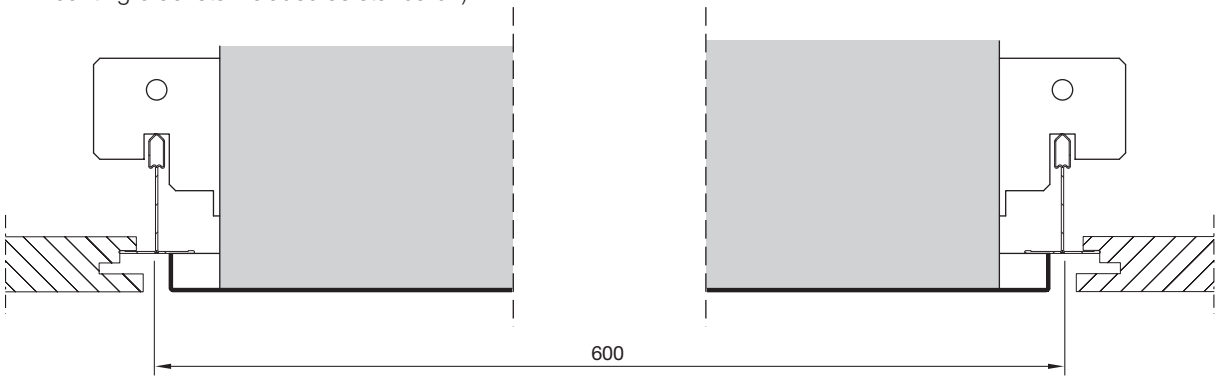


Grille box type V including mounting bracket type PBB

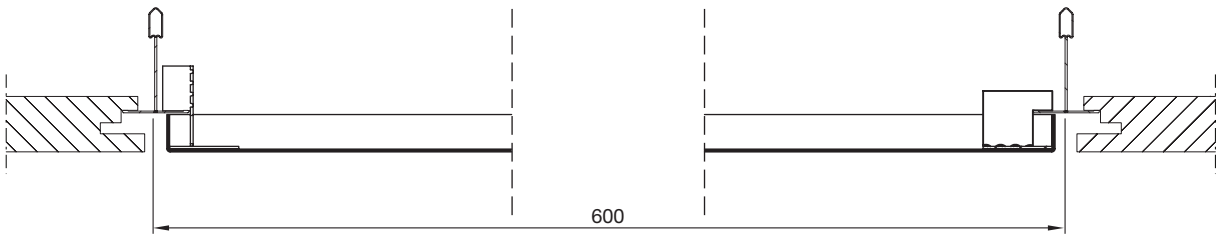
Sketch Versio- V, H, R pattern 300, 400, 500
(PBB mounting brackets not included, can be ordered separately.)



Sketch Versio- V, H, R pattern 600
(PBB mounting brackets included as standard.)



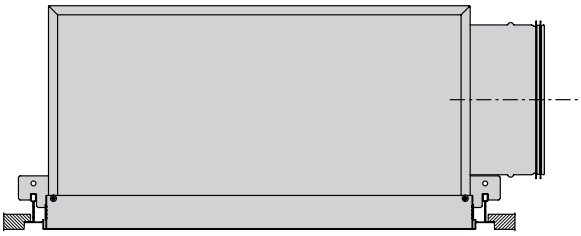
Sketch moduleplate type LM- Integra/Formo



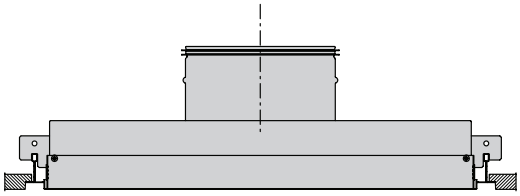
Ceiling tile adaption

9. Rockfon E10 24 Ecophon E / T24

Lindab´s diffuser adapted to the above mentioned ceiling system is mounted directly in the ceiling system, as depicted in the sketches.

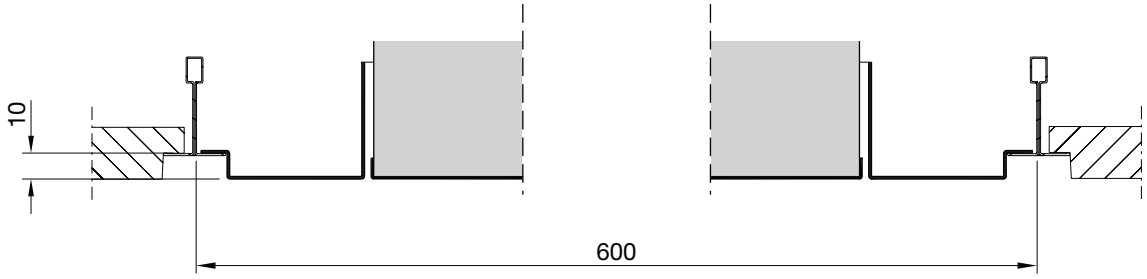


Plenum box type H including mounting bracket type PBB

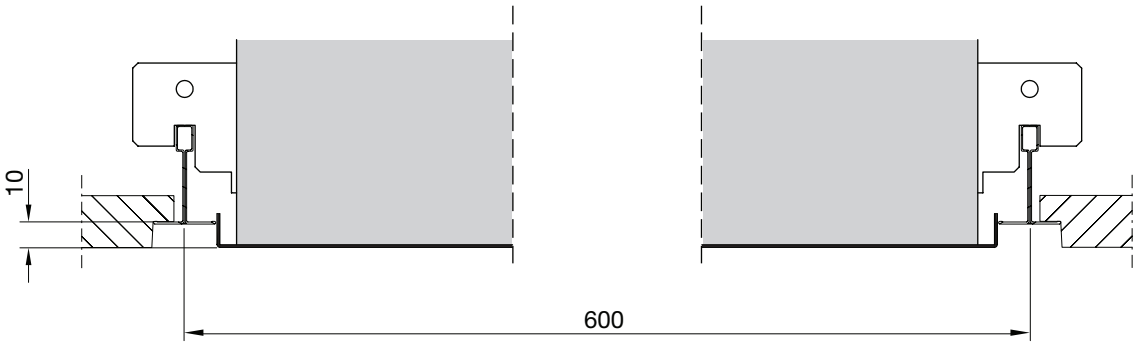


Grille box type V including mounting bracket type PBB

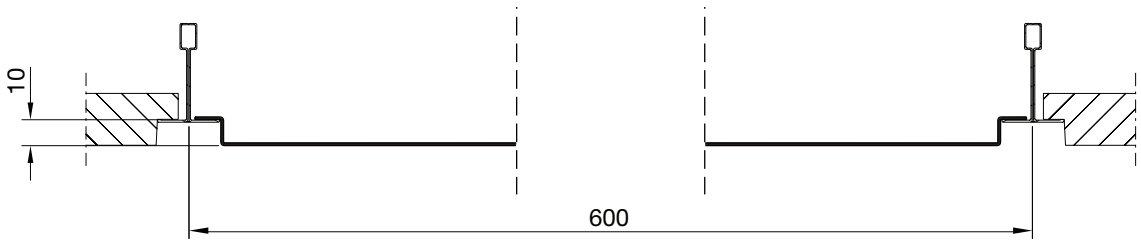
Sketch Versio- V, H, R pattern 300, 400, 500
(PBB mounting brackets not included, can be ordered separately.)



Sketch Versio- V, H, R pattern 600
(PBB mounting brackets included as standard.)



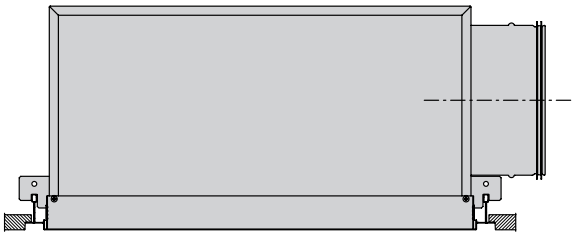
Sketch moduleplate type LM- Integra/Formo



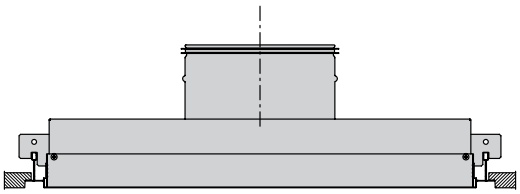
Ceiling tile adaption

10. Rockfon E10 15 Ecophon E / T15

Lindab´s ceiling diffusers adapted to the above mentioned ceiling systems are mounted directly in the ceiling system, as depicted in the sketches.

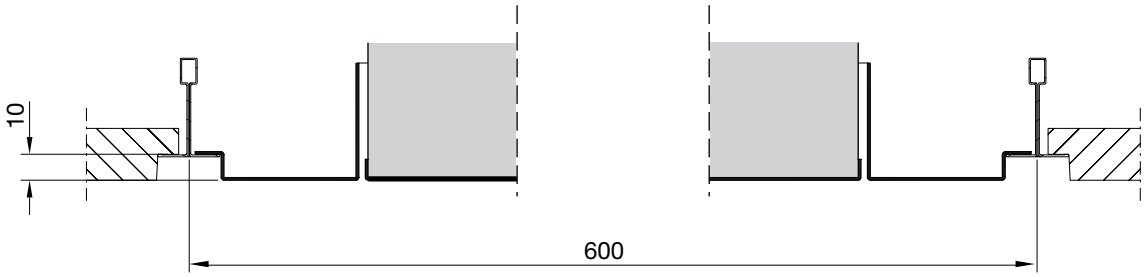


Plenum box type H including mounting bracket type PBB

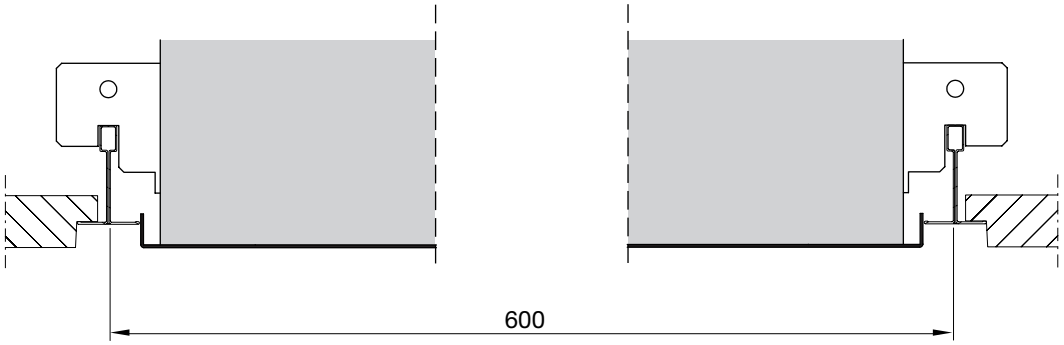


Grille box type V including mounting bracket type PBB

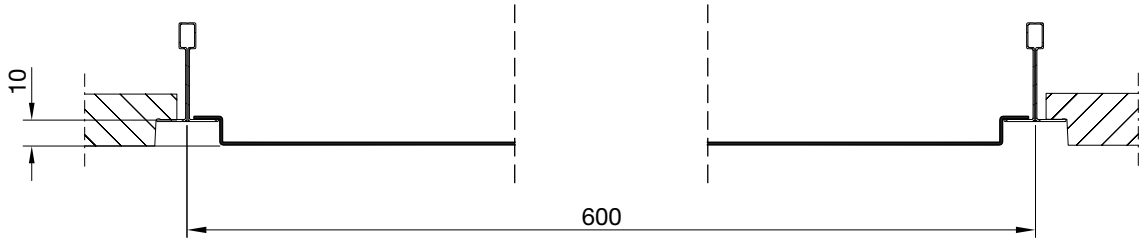
Sketch Versio- V, H, R pattern 300, 400, 500
(PBB mounting brackets not included, can be ordered separately.)



Sketch Versio- V, H, R pattern 600
(PBB mounting brackets included as standard.)



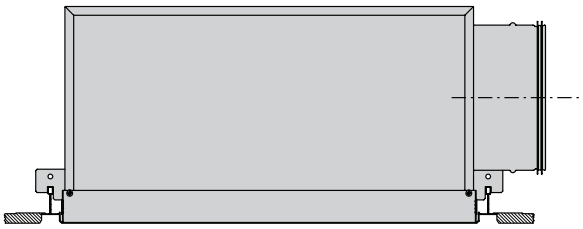
Sketch moduleplate type LM- Integra/Formo



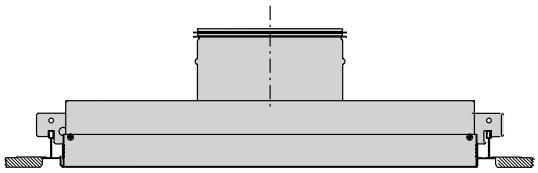
Ceiling tile adaption

11. Danotile Markant

Lindab´s ceiling diffusers adapted to the above mentioned ceiling systems are mounted directly in the ceiling system, as depticted in the sketches.

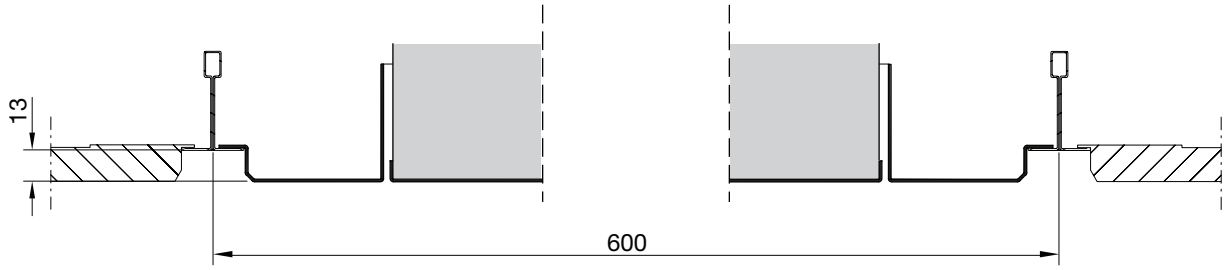


Plenum box type H including mounting bracket type PBB

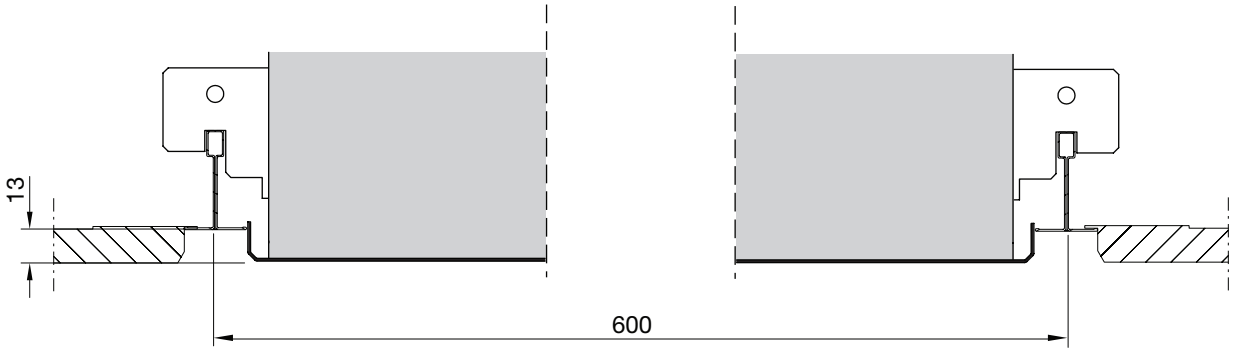


Grille box type V including mounting bracket type PBB

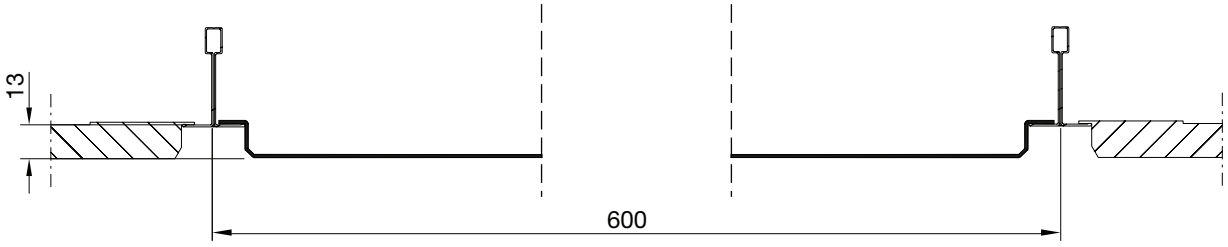
Sketch Versio- V, H, R pattern 300, 400, 500
(PBB mounting brackets not included, can be ordered separately.)



Sketch Versio- V, H, R pattern 600
(PBB mounting brackets included as standard.)



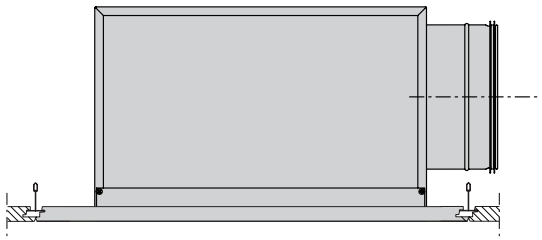
Sketch moduleplate type LM- Integra/Formo



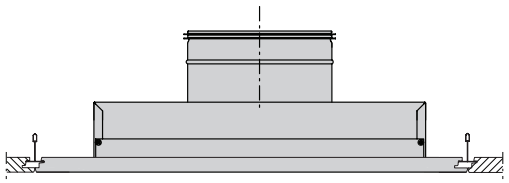
Ceiling tile adaption

14. Ecophon Focus edge DS

Lindab´s diffuser adapted to Ecophon Focus edge DS ceiling systems, is mounted directly in the ceiling system, as depicted in the sketches.

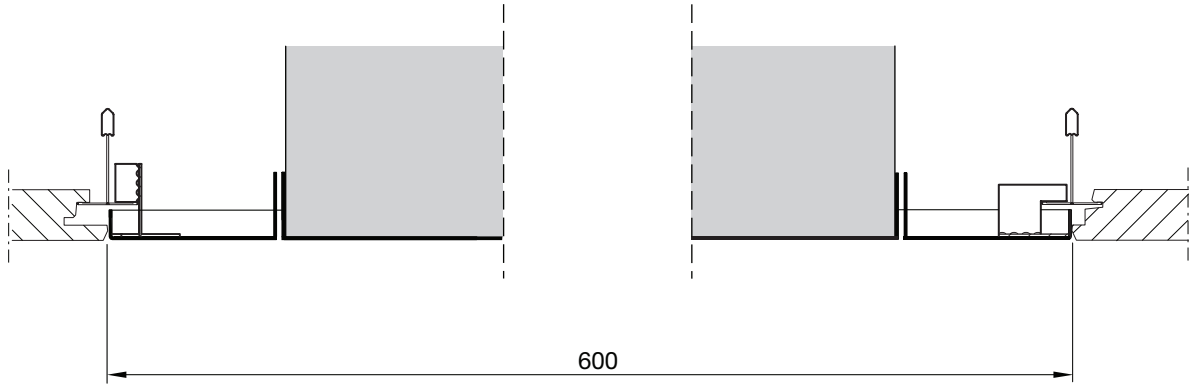


Plenum box type H

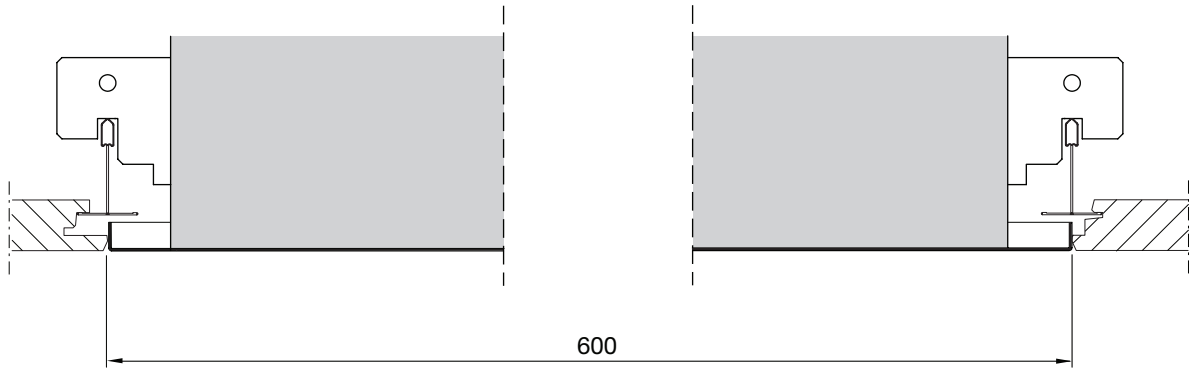


Grille box type V

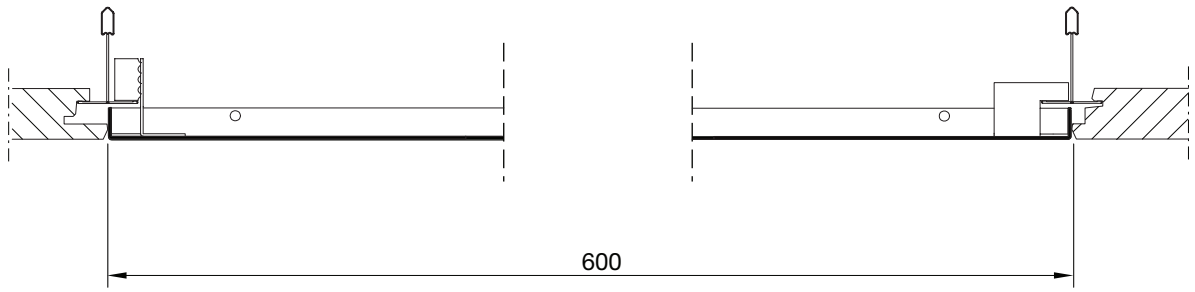
Sketch Versio- V, H, R pattern 300, 400, 500
(PBB mounting brackets not included, can be ordered separately.)



Sketch Versio- V, H, R pattern 600
(PBB mounting brackets included as standard.)



Sketch moduleplate type LM- Integra/Formo



Ceiling tile adaption

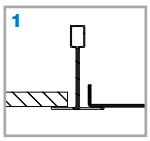
Moduleplate

Ceiling tile adaption

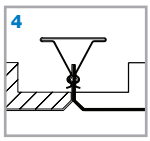
Product

Diffuser size Min. - max.

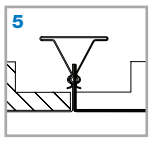
Ceiling types



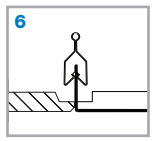
Danotile T24/T15
Ecophon T24
Rockfon A24.



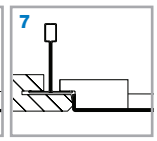
Dampa Clip-In
bevelled edge



Dampa Clip-In
square edge



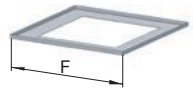
Luxalon SQ
Clip-In

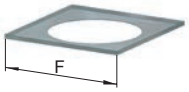


Danotile Contur
Ecophon D
Rockfon D-XL

Moduleplate type LM	mm	F: 595 mm	F: 600 mm	F: 600 mm	F: 600 mm	F: 599 mm
PKA	125 - 250	●	●	●	●	●
LKA	125 - 250	●	●	●	●	●
PKV	160 - 250	●	●	●	●	●
LKV	160 - 250	●	●	●	●	●

Moduleplate type LM	mm	F: 595 mm	F: 600 mm	F: 600 mm	F: 600 mm	F: 599 mm
PCA	100 - 400	●	●	●	●	●
LCA	100 - 400	●	●	●	●	●
CRL	100 - 400					
RCG	125 - 315	●	●	●	●	●
PC6	125 - 315	●	●	●	●	●
PC7	160 - 315	●	●	●	●	●
RC14	160 - 315	●	●	●	●	●
RC15	160 - 315	●	●	●	●	●
NC19	160 - 250	●	●	●	●	●
PCV	160 - 250	●	●	●	●	●
LCV	160 - 250	●	●	●	●	●





● Combination possible

Ceiling tile adaption

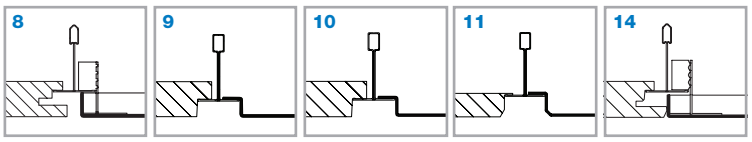
Moduleplate

Ceiling tile adaption

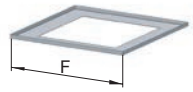
Product

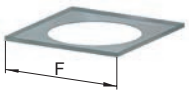
Diffuser size Min. - max.

Ceiling types



	Ecophon Focus DG	Rockfon E10 24 Ecophon E / T24	Rockfon E10 15 Ecophon E / T15	Danotile Markant	Ecophon Focus edge DS
Moduleplate type LM mm	F: 595 mm	F: 600 mm	F: 600 mm	F: 600 mm	F: 599 mm
PKA	●	●	●	●	●
LKA	●	●	●	●	●
PKV	●	●	●	●	●
LKV	●	●	●	●	●
Moduleplate type LM mm	F: 595 mm	F: 600 mm	F: 600 mm	F: 600 mm	F: 599 mm
PCA	●	●	●	●	●
LCA	●	●	●	●	●
CRL					
RCG	●	●	●	●	●
PC6	●	●	●	●	●
PC7	●	●	●	●	●
RC14	●	●	●	●	●
RC15	●	●	●	●	●
NC19	●	●	●	●	●
PCV	●	●	●	●	●
LCV	●	●	●	●	●





Moduleplate type LM	mm
PKA	125 - 250
LKA	125 - 250
PKV	160 - 250
LKV	160 - 250
PCA	100 - 400
LCA	100 - 400
CRL	100 - 400
RCG	125 - 315
PC6	125 - 315
PC7	160 - 315
RC14	160 - 315
RC15	160 - 315
NC19	160 - 250
PCV	160 - 250
LCV	160 - 250

● Combination possible