Perforated diffuser PCA

Description

PCA is a circular diffuser with perforated face plate and can be used for both supply and extract 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 MB can help to achieve a stable airflow to the diffuser as well as realise the potential for individual adjustment.
Damper type B is an unique linear cone damper which allows to use the full operational area (0-100%) and allows to balance with a high pressure drop over the box with low sound generation. Furthermore the construction of the damper gives an accurate and reliable measurement.
Damper type C and E are with rotating blade dampers for respectively supply and extract. Typically used in applications that don't require a high balancing pressure in the plenum box.

- Suitable for both supply and extract air
- Suitable for horizontal supply of cooled air
- Option of 1, 2 and 3-way supply air
- Plenum box with several damper options

Maintenance

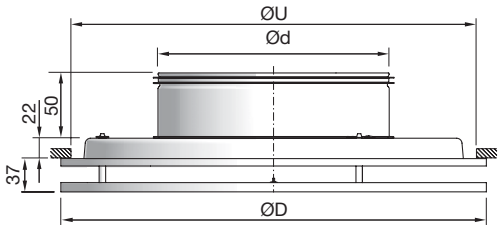
The face plate can be removed to enable cleaning of internal parts or to gain access to the duct or box. The visible parts of the diffuser can be wiped with a damp cloth.

Order code

Product	**PCA**	**aaa**
Type		
PCA		
Connection dim. Ød		
Ø100-400		

Example: PCA-200

Dimensions



PCA Ød mm	ØD mm	ØU* mm	Free area A m^2	m kg
100	240	200	0.016	0,8
125	240	200	0.018	0,8
160	300	260	0.023	1,2
200	360	320	0.03	1,7
250	460	420	0.042	2,2
315	540	500	0.058	3,2
400	540	500	0.066	3,4

* ØU = Ceiling grid opening

Materials and finish

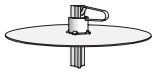
Material:	Galvanised steel
Standard finish:	Powder-coated
Standard colours:	RAL 9003 and RAL 9010, gloss 30

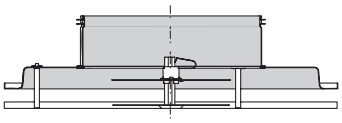
The diffuser is available in other colours. Please contact Lindab's sales department for further information.

Perforated diffuser PCA

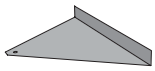
Accessories

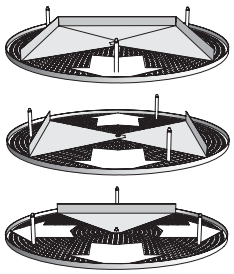
DRZ - Balancing damper



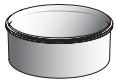


DAZ - Blending profiles (set)

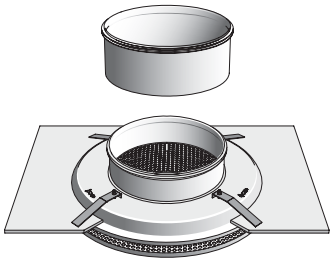




MBZ - Extension piece



DDZ - Mounting brackets (set)

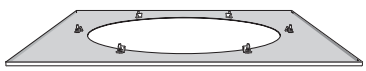


Order code - accessories

Product	aaa	bbb
Type		
Size		

Example: DRZ-200

LM - Module plate

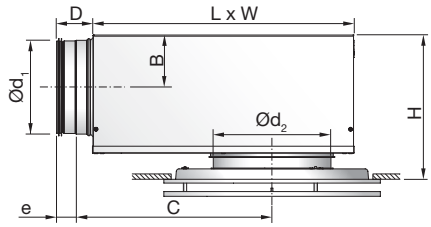


Order code - module plate

Product	LM	a	PCA	ccc
Type				
Ceiling system				
Diffuser				
Size				

Example: LM-1-PCA-200

PCA + MB plenum box

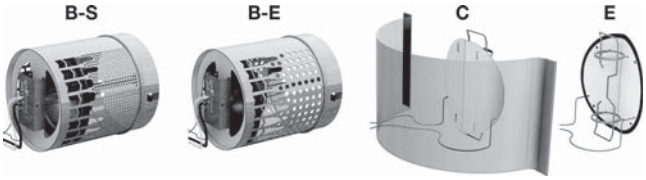


$Ød_1$	$Ød_2$	B	C	D	e	H*	L	W
mm		mm						
100	100	62	245	78	40	180 - 220	310	260
100	125	62	245	78	40	180 - 220	310	260
100	160	62	245	78	40	180 - 220	310	260
125	125	75	291	78	40	205 - 245	376	310
125	160	75	291	78	40	205 - 245	376	310
125	200	75	291	78	40	205 - 245	376	310
160	160	92	352	78	40	239 - 279	459	380
160	200	92	352	78	40	239 - 279	459	380
160	250	92	352	78	40	239 - 279	459	380
200	200	112	425	78	40	280 - 320	565	460
200	250	112	425	78	40	280 - 320	565	460
200	315	112	425	78	40	280 - 320	565	460
250	250	137	514	118	60	330 - 370	698	540
250	315	137	514	118	60	330 - 370	698	540
250	400	137	514	118	60	330 - 370	698	540
315	315	170	675	118	60	395 - 435	858	540
315	400	170	675	118	60	395 - 435	858	540

* 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

Damper options



Order code

Product	MB	a	bbb	ccc	d
Type					
MB					
Damper					
B = Linear cone damper					
C = Blade damper supply					
E = Blade damper extract					
Duct connection $Ød_1$					
Ø100-315					
Diffuser dimension $Ød_2$					
Ø100-400					
Function (Only for B damper)					
S = Supply air E = Extract					

Example: PCA-200+MBB-160-200-S
Example: PCA-200+MBC-125-200

Perforated diffuser PCA

Technical data

Following PCA+plenum box data are valid for MBB-S/-E.
For MBC and MBE data, go to www.lindQST.com .

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 power level

The sound power 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-S		$\Delta p_t \geq 50$ 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.

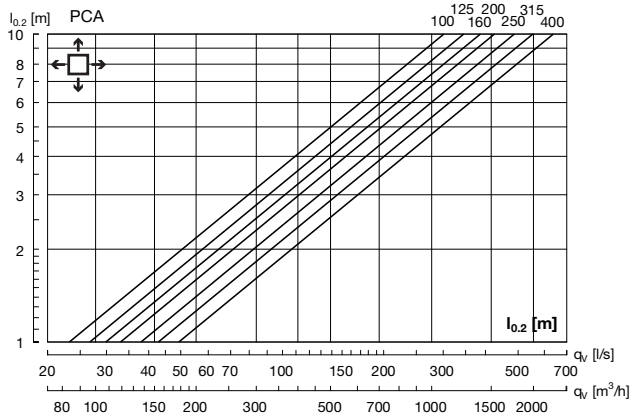
PCA + MBB-S/-E									
duct	PCA	Centre frequency Hz							
Ød$_1$	Ød$_2$	63	125	250	500	1K	2K	4K	8K
100	100	18	17	8	20	19	20	19	23
100	125	19	16	7	19	18	18	18	21
100	160	21	16	5	15	17	18	16	19
125	125	18	13	9	20	13	19	18	19
125	160	12	13	8	19	13	16	17	19
125	200	16	11	5	16	13	15	15	17
160	160	17	17	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.

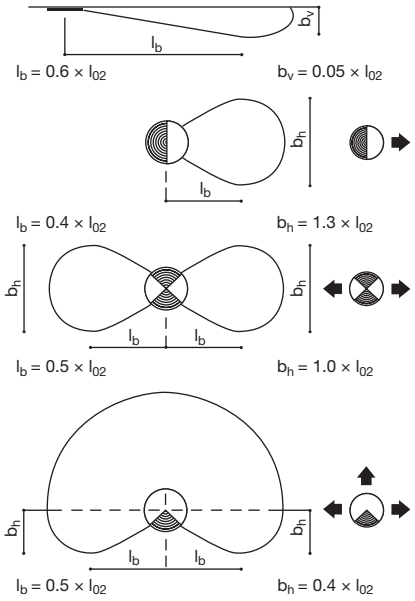


Correction throw $L_{0.2}$

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

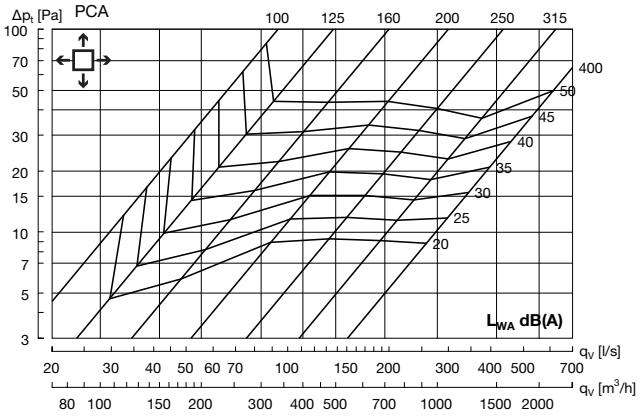
l_b = Distance from the diffuser to the point where there is maximum dispersal.
b_v = Depth of the air jet on a vertical plane.
b_h = Width of the air jet on a horizontal plane.



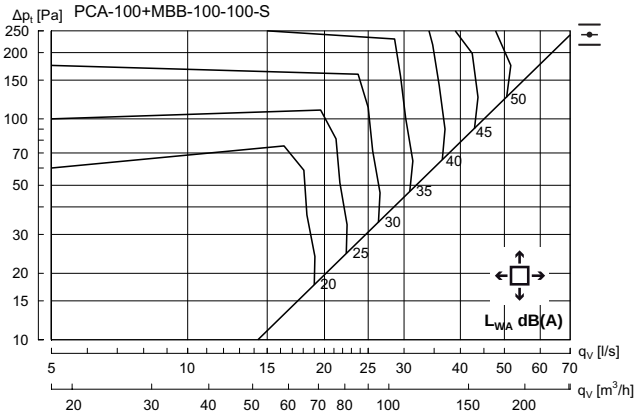
Perforated diffuser PCA

Technical data

PCA without box - Supply air



PCA 100 + MBB-S - Supply air

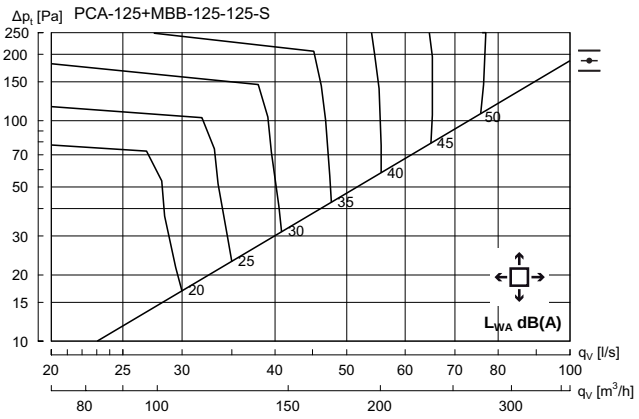


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	12	5	2	-5	-4	-11	-20	-26

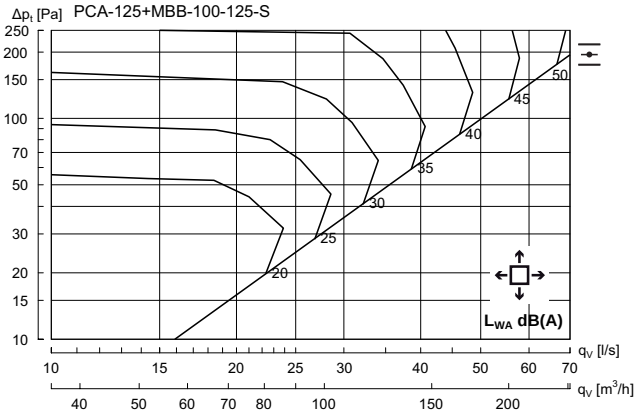
Perforated diffuser PCA

Technical data

PCA 125 + MBB-S - Supply air

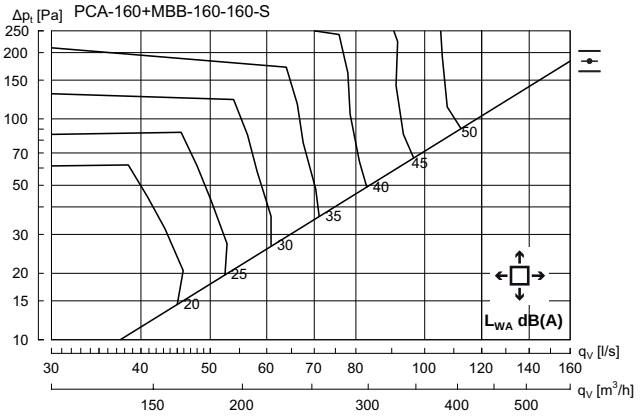


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	9	5	-1	-4	-3	-11	-20	-26

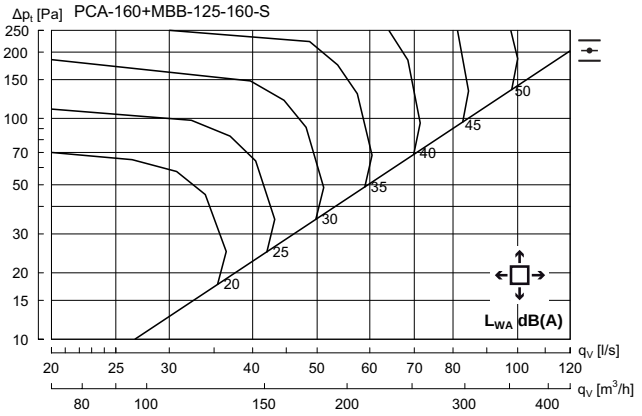


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	11	7	3	-5	-5	-11	-18	-25

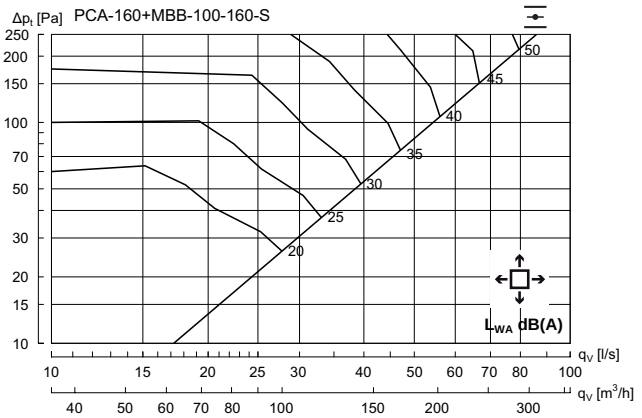
PCA 160 + MBB-S - Supply air



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

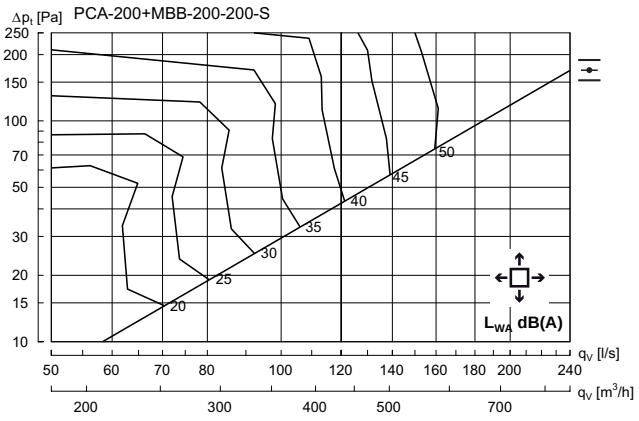


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	9	4	1	-3	-5	-10	-15	-19

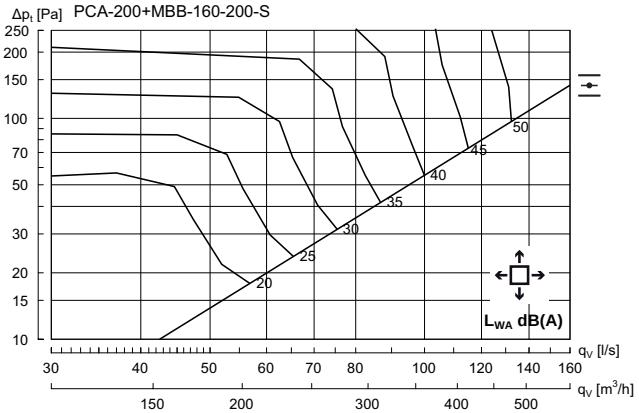
Perforated diffuser PCA

Technical data

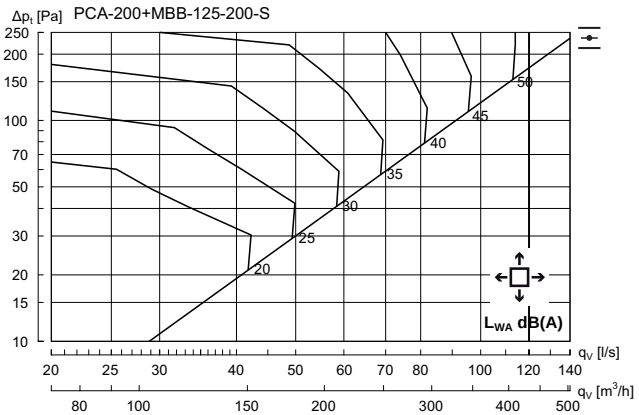
PCA 200 + MBB-S - Supply air



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

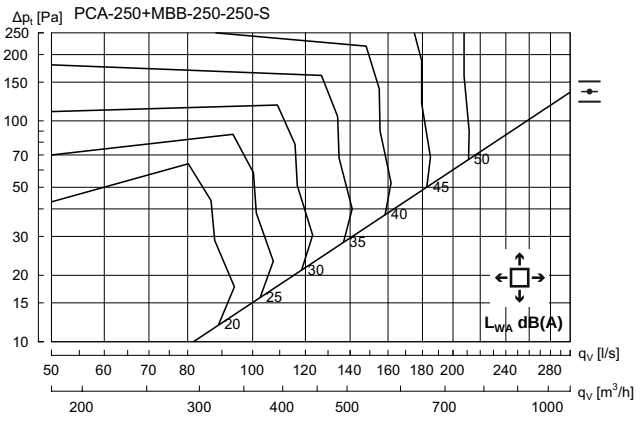


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	10	5	-2	-4	-3	-10	-20	-26

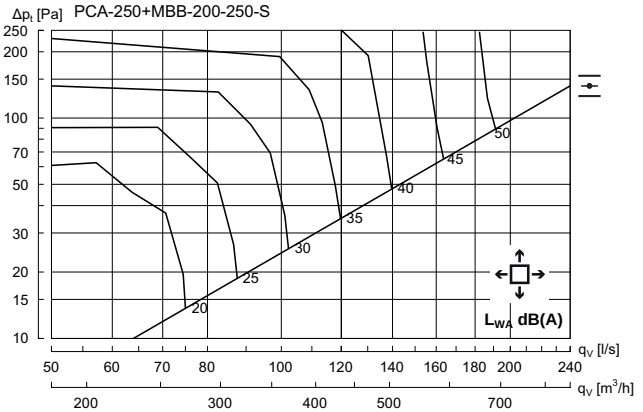


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	10	5	1	-4	-5	-10	-15	-22

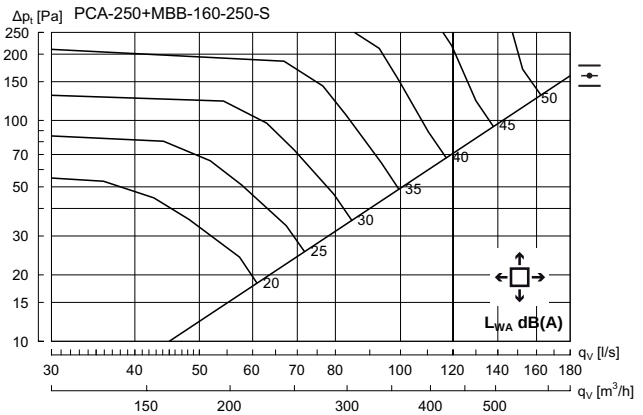
PCA 250 + MBB-S - Supply air



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

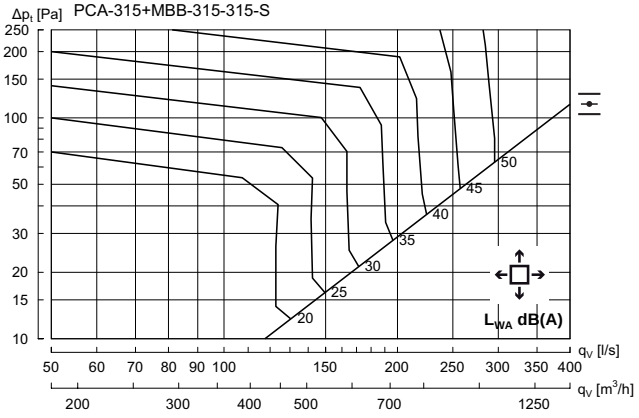


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	8	5	0	-4	-4	-10	-17	-23

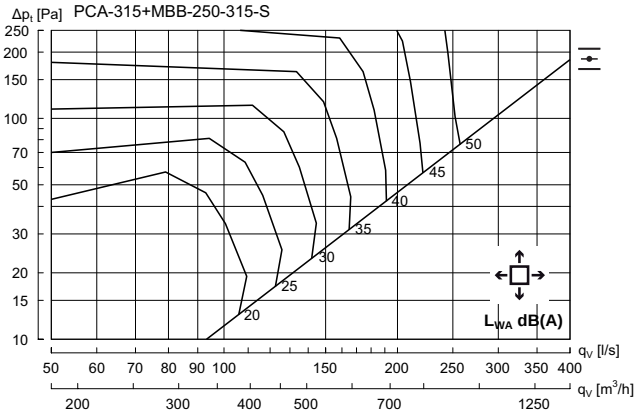
Perforated diffuser PCA

Technical data

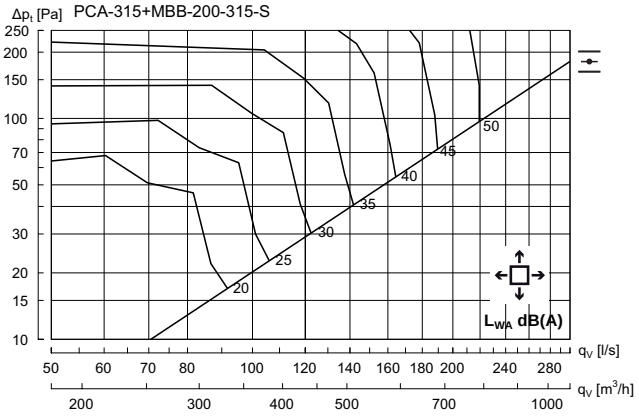
PCA 315 + MBB-S - Supply air



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

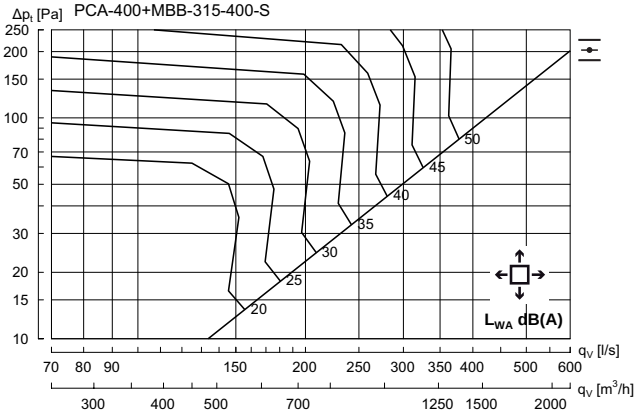


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	11	3	-2	-3	-4	-11	-18	-27

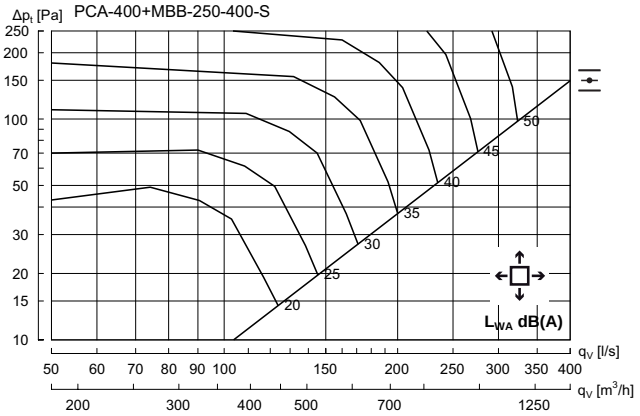


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	10	5	-1	-3	-4	-11	-19	-25

PCA 400 + MBB-S - 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

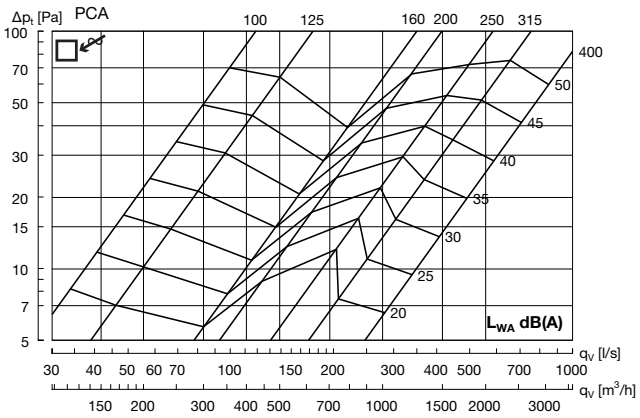
Correction sound power level (L_{WA}) and pressure loss (ΔP_t)

PCA + MBB-S							
duct	PCA	1 - ways		2 - ways		3 - ways	
$Ød_1$	$Ød_2$	L_{WA}	Δp_t	L_{WA}	Δp_t	L_{WA}	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

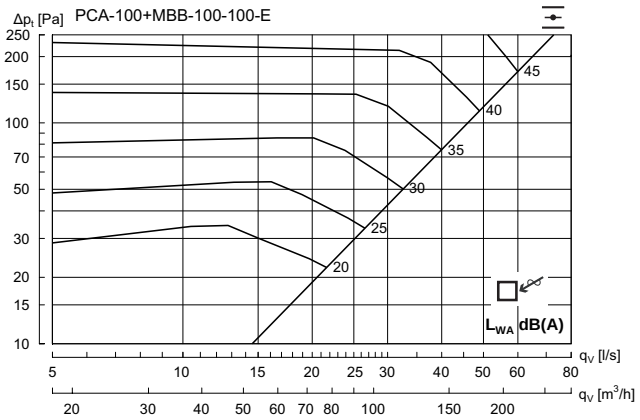
Perforated diffuser PCA

Technical data

PCA without box - Extract air



PCA 100 + MBB-E - Extract air

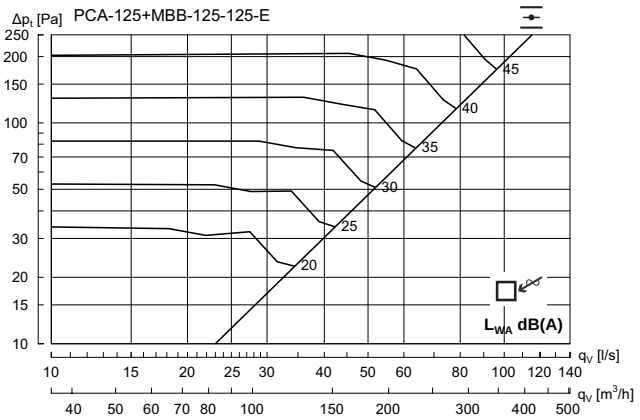


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	11	0	3	-3	-6	-10	-15	-22

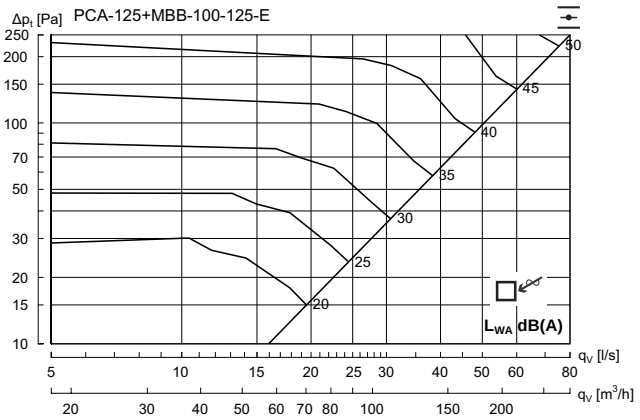
Perforated diffuser PCA

Technical data

PCA 125 + MBB-E - Extract air

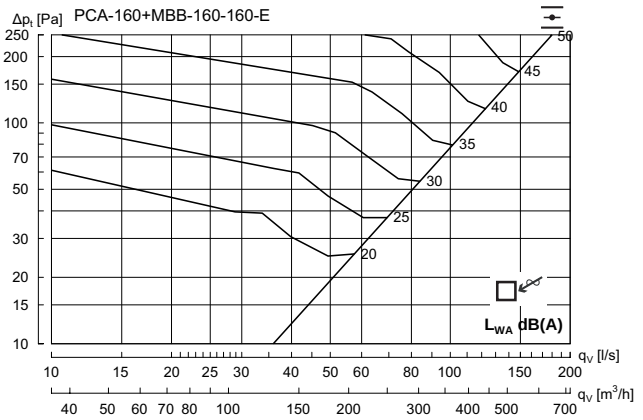


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	13	5	-1	-4	-4	-11	-15	-20

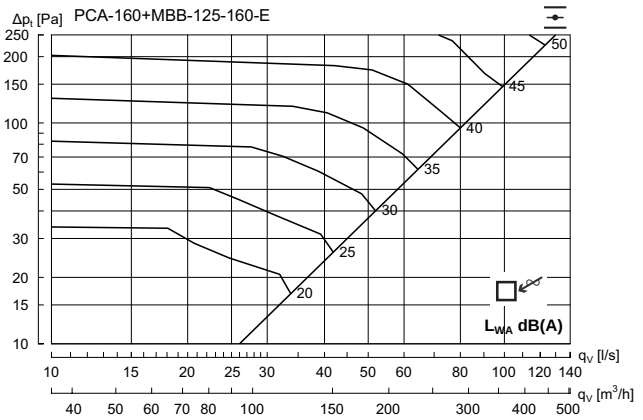


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	13	-1	3	-3	-6	-10	-16	-19

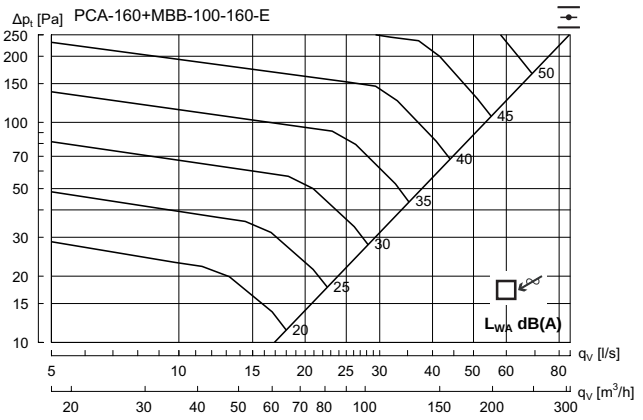
PCA 160 + MBB-E - Extract air



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

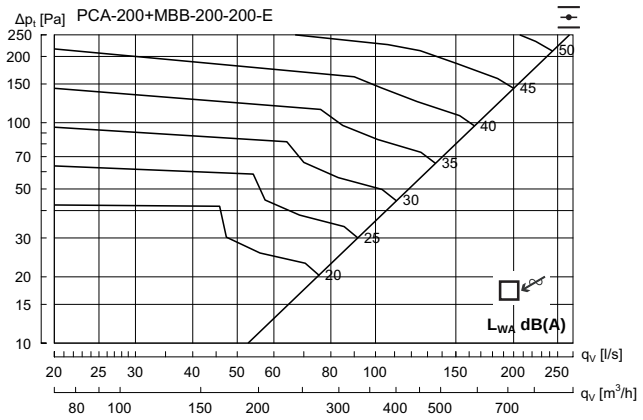


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	10	-1	5	-3	-8	-11	-18	-25

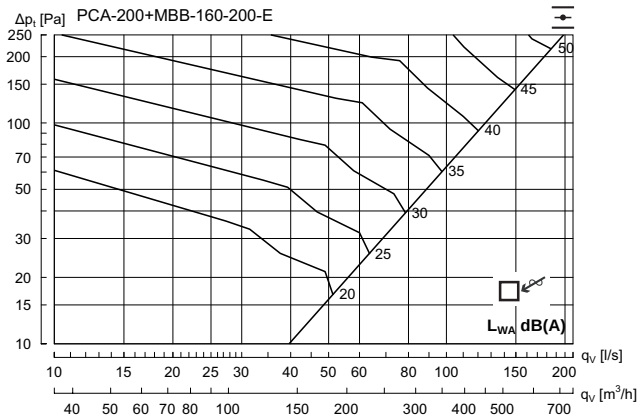
Perforated diffuser PCA

Technical data

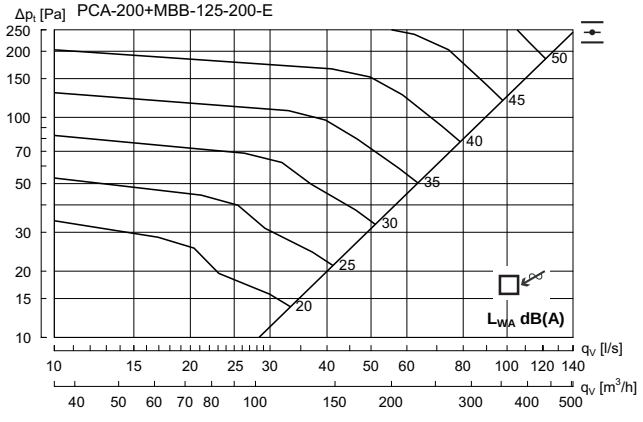
PCA 200 + MBB-E - Extract air



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

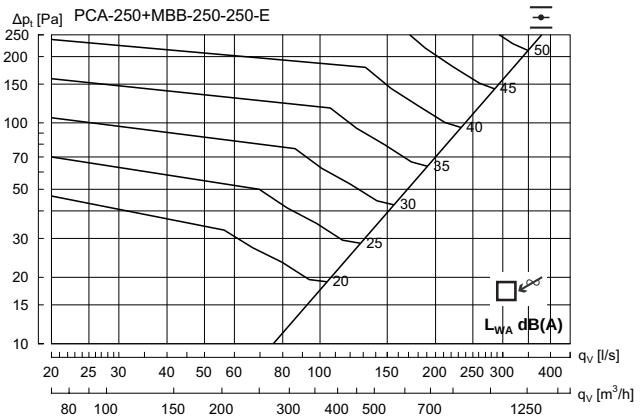


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	15	6	-1	-5	-5	-9	-14	-20

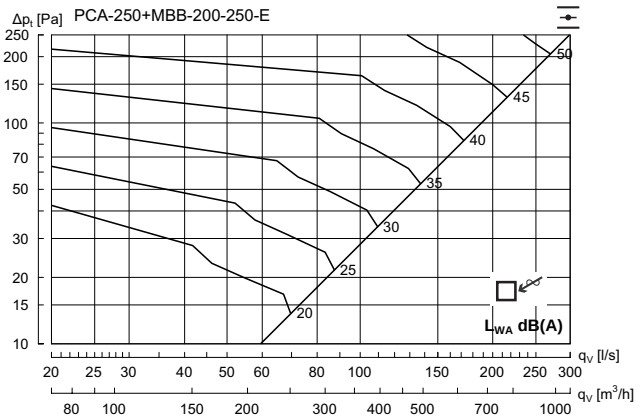


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	9	3	1	-4	-5	-10	-14	-21

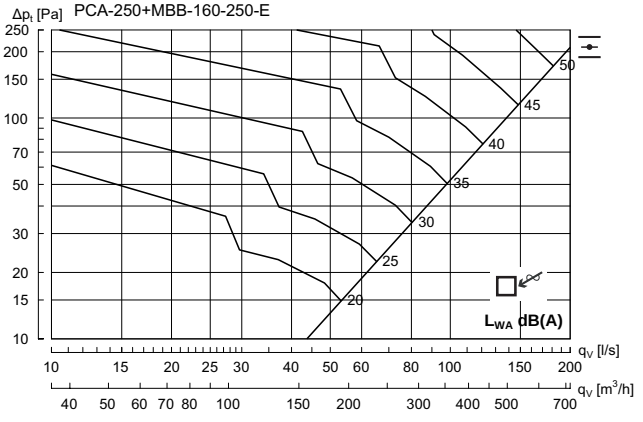
PCA 250 + MBB-E - Extract air



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

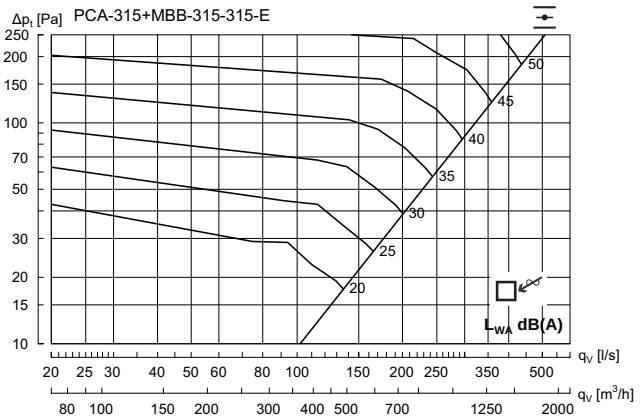


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	16	6	0	-5	-5	-9	-15	-21

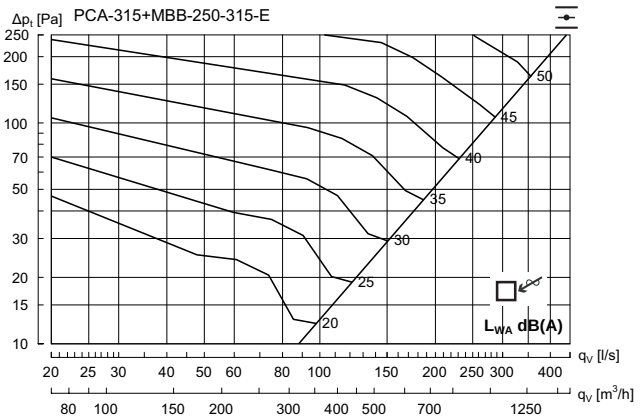
Perforated diffuser PCA

Technical data

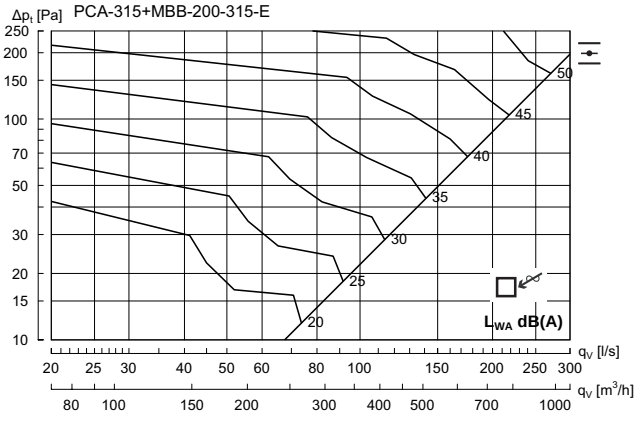
PCA 315 + MBB-E - Extract air



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

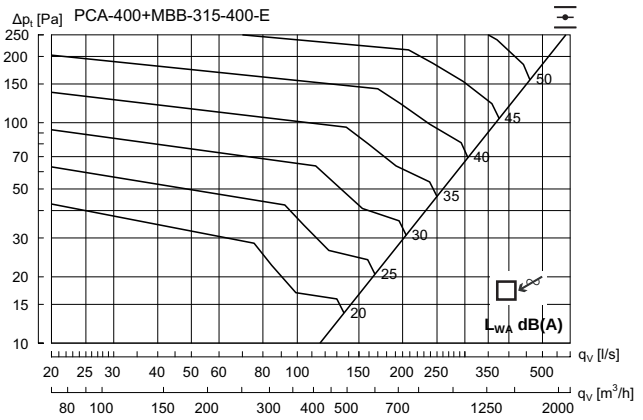


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	7	5	2	-3	-6	-10	-16	-24

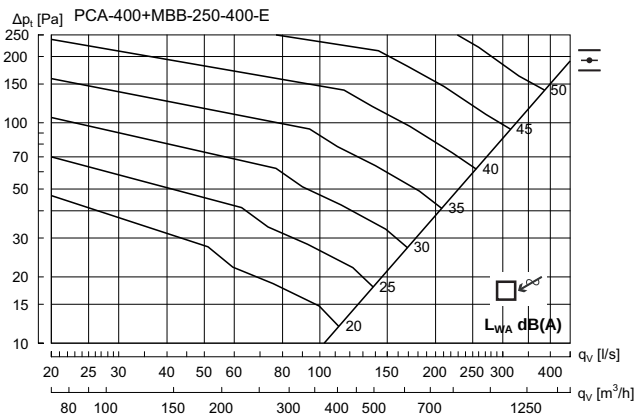


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	13	5	0	-3	-5	-9	-15	-23

PCA 400 + MBB-E - Extract 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