



Lindab **LCA**

Formo - Ceiling diffuser



Formo - Ceiling diffuser

LCA



Description

LCA is a circular diffuser with unperforated face plate and can be used for both supply and extract air. LCA 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 LCA diffuser in a plenum box type MB or CB can help to achieve a stable airflow to the diffuser as well as realize the potential for individual adjustment.

MB box with damper type B is with a unique linear cone damper which allows to use the full operational working area and can balance with a high balancing pressure with low sound generation. Furthermore the construction of the damper provides a linear balancing characteristic, as well as an accurate and reliable measurement.

MB and CB box with damper type C or E are with rotating blade dampers for respectively supply and extract. Typically used in applications that do not 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

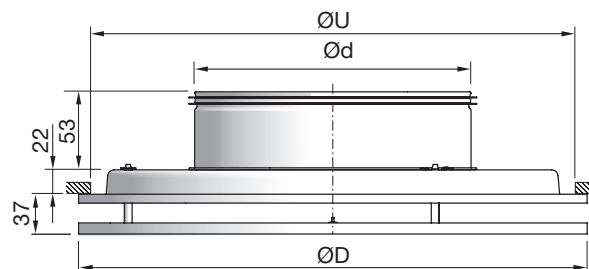
The face plate can be removed to enable cleaning of internal parts or to gain access to the duct or box. The visible parts of the diffuser can be wiped with a damp cloth.

Order code

Product	LCA	aaa
Type	LCA	
Connection dim. Ød	Ø100-400	

Example: LCA-200

Dimensions



LCA Ød mm	ØD mm	ØU* mm	Free area A m ²	m kg
100	240	200	0.010	0.8
125	240	200	0.011	0.9
160	300	260	0.0165	1.3
200	360	320	0.023	1.6
250	460	420	0.03	2.6
315	540	500	0.037	3.4
400	540	500	0.037	3.3

* ØU = Ceiling grid opening.

Materials and finish

Upper part: Galvanised steel
 Standard finish: Powder-coated
 Standard colours: RAL 9003 or RAL 9010, gloss 30

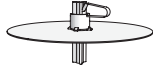
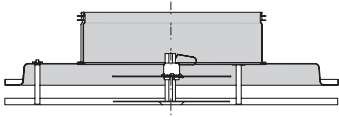
The diffuser is available in other colours. Please contact Lindab's sales department for further information.

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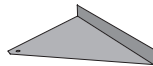
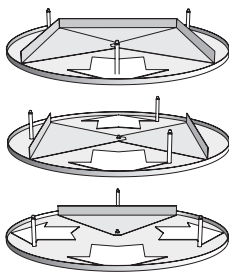
LCA

Accessories

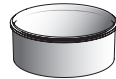
DRZ - Balancing damper



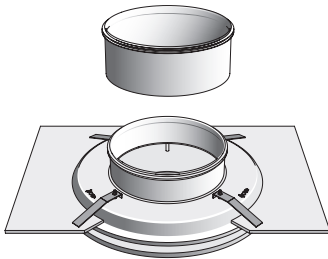
DAZ - Directional deflector (set)



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

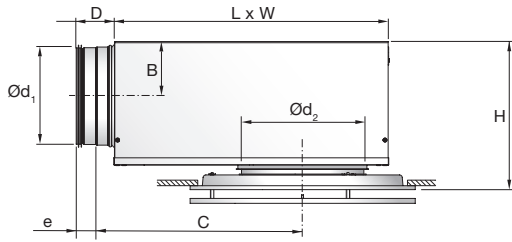
Product	LM	a	LCA	ccc
Type				
Ceiling system				
Diffuser				
Size				

Example: LM-1-LCA-200

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LCA + MB plenum box



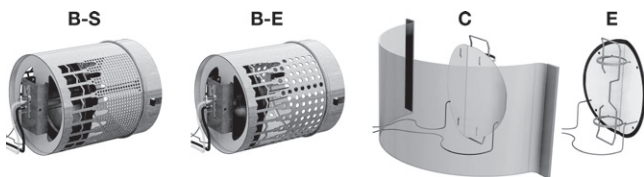
LCA + MB

Ød ₁ mm	Ød ₂ mm	B	C	D	e	H*	L	W
mm								
100	100	62	245	78	40	197 - 237	310	260
100	125	62	245	78	40	197 - 237	310	260
100	160	62	245	78	40	197 - 237	310	260
125	125	75	291	78	40	222 - 262	376	310
125	160	75	291	78	40	222 - 262	376	310
125	200	75	291	78	40	222 - 262	376	310
160	160	92	352	78	40	256 - 296	459	380
160	200	92	352	78	40	256 - 296	459	380
160	250	92	352	78	40	256 - 296	459	380
200	200	112	425	78	40	297 - 337	565	460
200	250	112	425	78	40	297 - 337	565	460
200	315	112	425	78	40	297 - 337	565	460
250	250	137	514	118	60	347 - 387	698	540
250	315	137	514	118	60	347 - 387	698	540
250	400	137	514	118	60	347 - 387	698	540
315	315	170	675	118	60	412 - 452	858	540
315	400	170	675	118	60	412 - 452	858	540

* Using accessory MBZ the H dimension will increase:

- Ød₂ = 100 - 200 mm => H +40 mm
- Ød₂ = 250 - 315 mm => H +60 mm
- Ød₂ = 400 mm => H +80 mm

Damper options



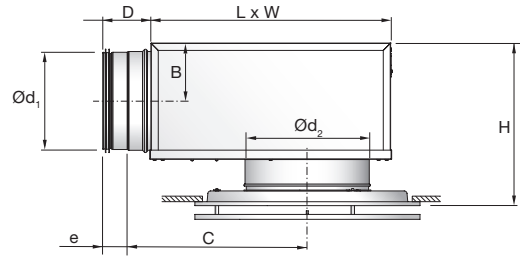
Order code

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 1: LCA-200+MBB-160-200-S

Example 2: LCA-200+MBC-125-200

LCA + CBC/CBE plenum box



LCA + CBC/CBE

Ød ₁ mm	Ød ₂ mm	B	C	D	e	H*	L	W
mm								
100	125	65	213	78	40	208 - 248	273	209
100	160	65	231	78	40	208 - 248	308	244
125	160	78	250	78	40	233 - 273	327	244
125	200	78	270	78	40	233 - 273	367	284
160	200	95	295	78	40	268 - 308	392	284
160	250	95	320	78	40	268 - 308	442	334
200	250	115	345	78	40	308 - 348	467	334
200	315	115	377	78	40	308 - 348	532	399
250	315	140	423	118	60	358 - 398	558	399
250	400	140	466	118	60	358 - 398	643	484
315	400	173	536	118	60	423 - 463	714	484

* Using accessory MBZ the H dimension will increase:

- Ød₂ = 100 - 200 mm => H +40 mm
- Ød₂ = 250 - 315 mm => H +60 mm
- Ød₂ = 400 mm => H +80 mm

Damper options



Order code

Product	CB	a	bbb	ccc
Type				
CB				
Damper				
C = Blade damper supply				
E = Blade damper extract				
Duct connection Ød ₁				
Ø100-315				
Diffuser dimension Ød ₂				
Ø125-315				

Example 1: LCA-200 + CBC-160-200

Example 2: LCA-200 + CBE-125-200

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Technical data

Following LCA+plenum box data are valid for MBB-S/-E.
For MBC, MBE and MBV 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

LCA + MBB-S		$\Delta p_t \geq 50$ Pa		$\Delta p_t \geq 50$ Pa	
duct	LCA	30dB(A)		35dB(A)	
$\varnothing d_1$	$\varnothing d_2$	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	582
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 diffusers ΔL from duct to room, including and reflection, see table below.

LCA + MBB-S		Centre frequency Hz							
duct	LCA	63	125	250	500	1K	2K	4K	8K
$\varnothing d_1$	$\varnothing d_2$								
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 guide, see the [MB installation instruction](#).

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Technical data LCA + CBC/CBE

Following LCA+plenum box data are valid for CBC.
For CBE data, follow link below. For complete configuration of your LCA diffuser, go to the [LindQST Airborne calculator](#).

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

LCA + CBC		$\Delta p_t \geq 50$ Pa 30dB(A)		$\Delta p_t \geq 50$ Pa 35 dB(A)	
$\text{\O}d_1$	LCA $\text{\O}d_2$	l/s	m ³ /h	l/s	m ³ /h
100	125	34	122	48	171
100	160	36	130	61	221
125	160	45	160	74	266
125	200	45	163	89	322
160	200	66	239	103	371
160	250	73	262	129	464
200	250	87	313	145	523
200	315	90	325	172	619
250	315	127	457	174	626
250	400	144	517	206	742
315	400	151	542	208	750

Sound attenuation

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

LCA + CBC		Centre frequency [Hz]							
duct	LCA	63	125	250	500	1K	2K	4K	8K
$\text{\O}d_1$	$\text{\O}d_2$								
100	125	25	18	15	15	20	23	14	14
100	160	25	13	15	15	19	18	12	10
125	160	22	13	11	15	21	19	12	12
125	200	20	18	13	15	20	17	13	12
160	200	19	9	12	16	20	17	14	11
160	250	21	11	12	16	15	15	12	10
200	250	23	8	12	16	16	15	14	10
200	315	19	7	13	13	15	13	13	9
250	315	16	9	11	14	17	13	12	7
250	400	17	9	13	13	14	11	11	7
315	400	19	5	13	15	14	14	11	13

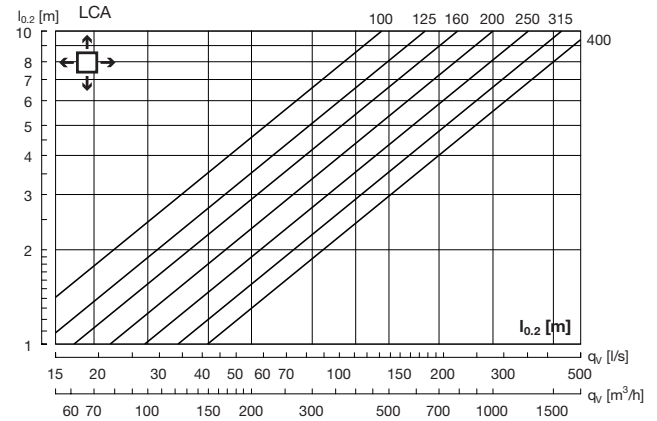
Balancing

Balancing guide, see the [CBC/CBE installation instruction](#).

Technical data

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.



Correction throw $l_{0,2}$

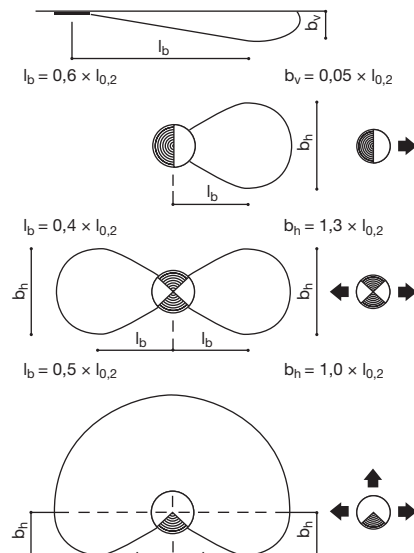
$\text{\O}d_1$	1 - ways	2 - ways	3 - ways
100	2.4	1.8	1.4
125	2.3	1.8	1.3
160	2.3	1.8	1.3
200	2.3	1.9	1.3
250	2.3	2	1.3
315	2.3	2	1.3
400	2.2	2.1	1.3

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.

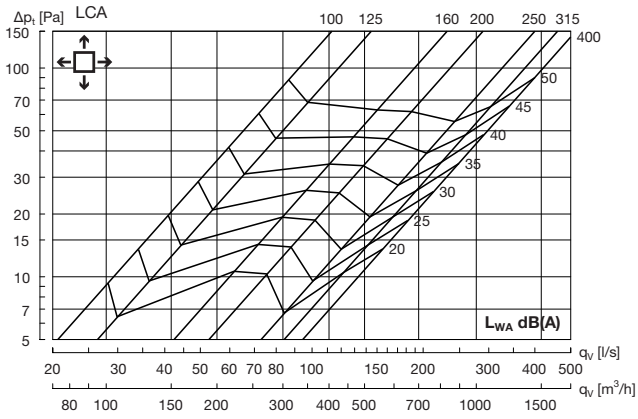


Formo - Ceiling diffuser

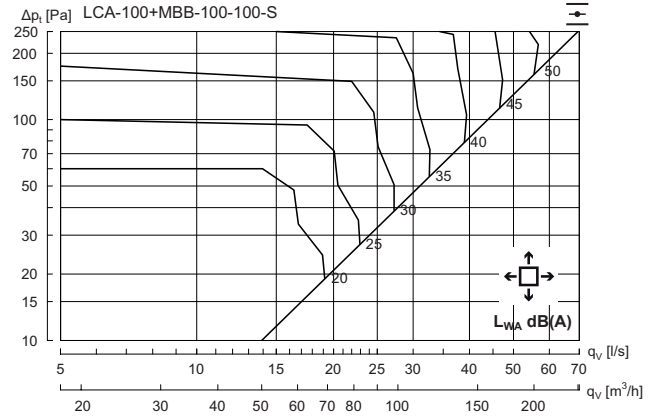
LCA

Technical data

LCA without box - supply air



LCA 100 + MBB-S - Supply air



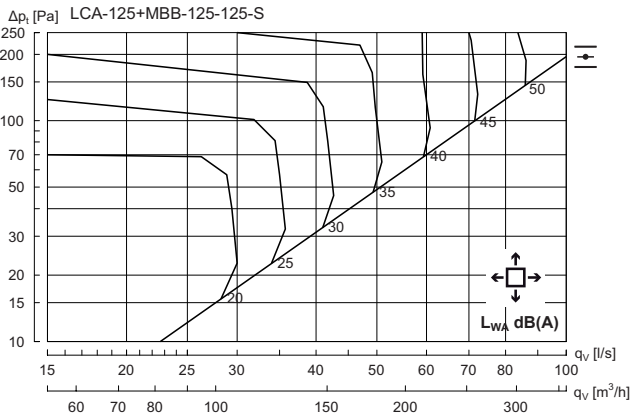
Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	9	7	3	-5	-5	-12	-16	-23

Formo - Ceiling diffuser

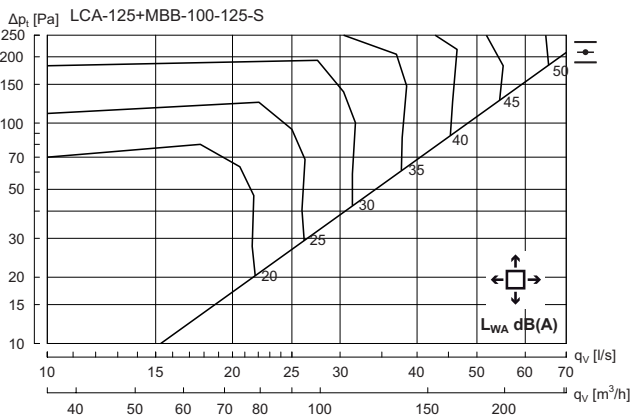
LCA

Technical data

LCA 125 + MBB-S - Supply air

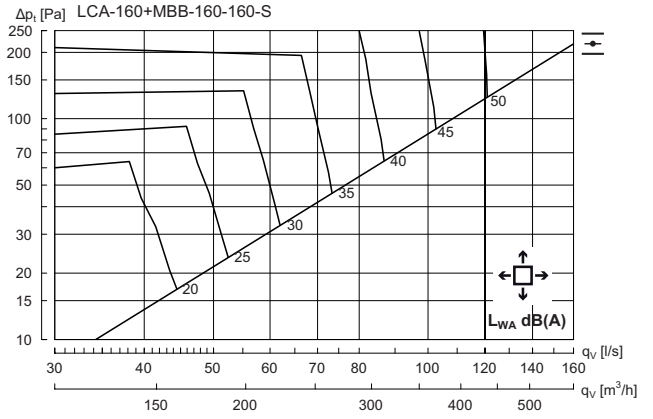


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	12	6	1	-4	-4	-13	-20	-28

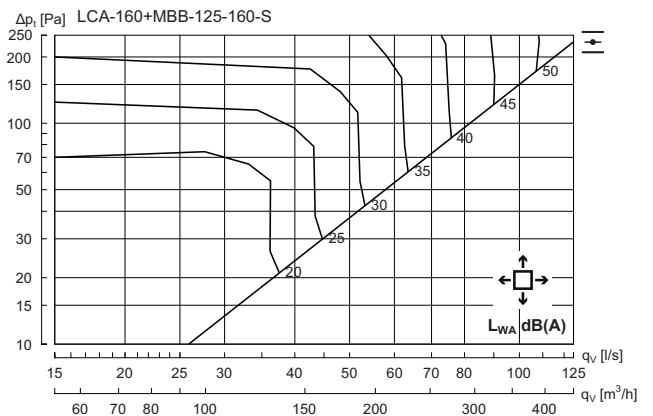


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	11	7	3	-4	-5	-14	-18	-24

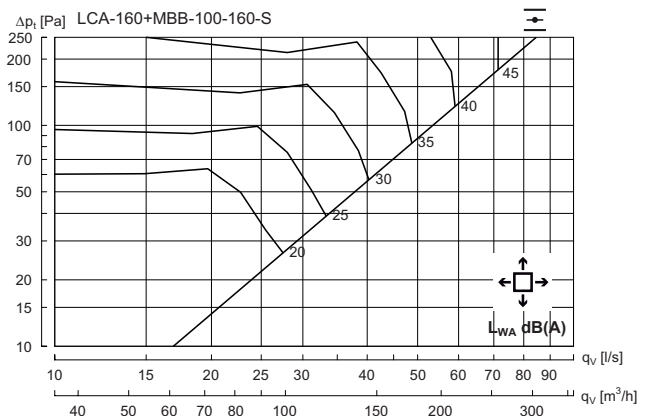
LCA 160 + MBB-S - Supply air



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



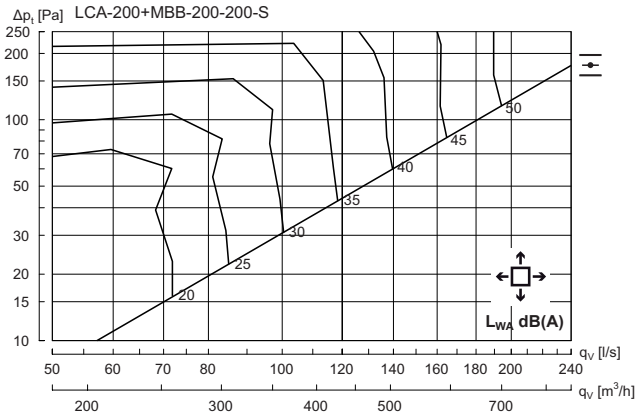
Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	12	5	1	-2	-6	-10	-14	-20

Formo - Ceiling diffuser

LCA

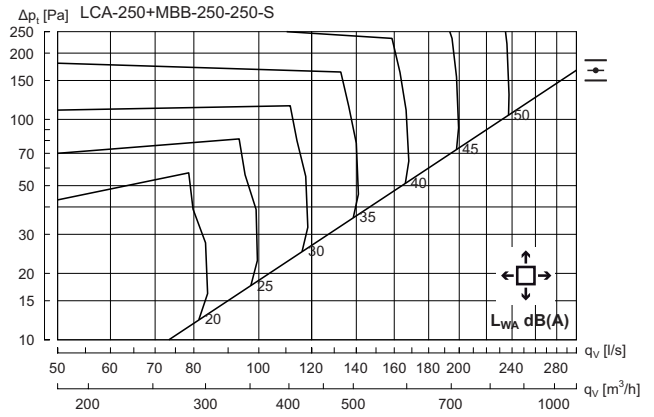
Technical data

LCA 200 + MBB-S - Supply air

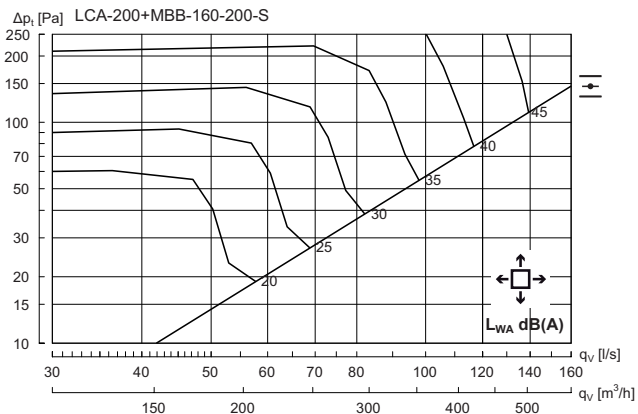


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	12	6	-1	-1	-5	-15	-21	-26

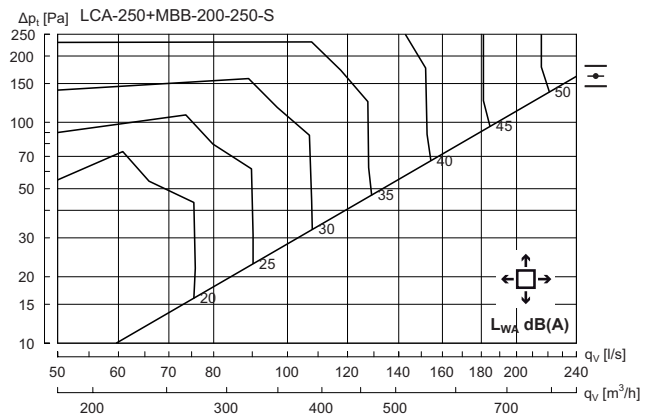
LCA 250 + MBB-S - Supply air



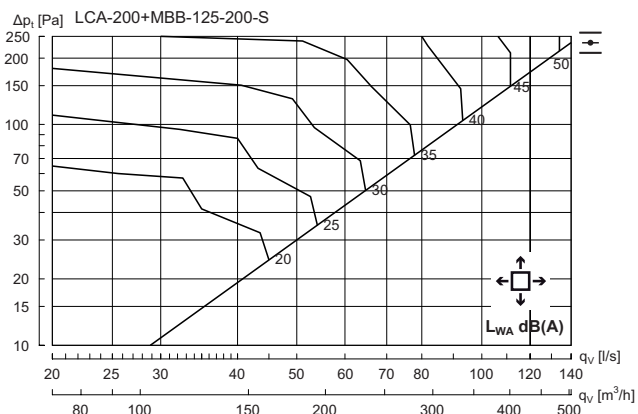
Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	12	3	-4	0	-4	-17	-24	-31



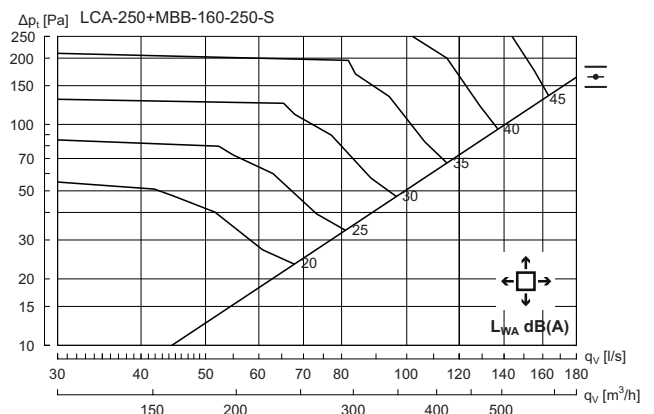
Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	12	9	0	-2	-6	-12	-19	-24



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}	12	7	1	-3	-6	-11	-15	-21



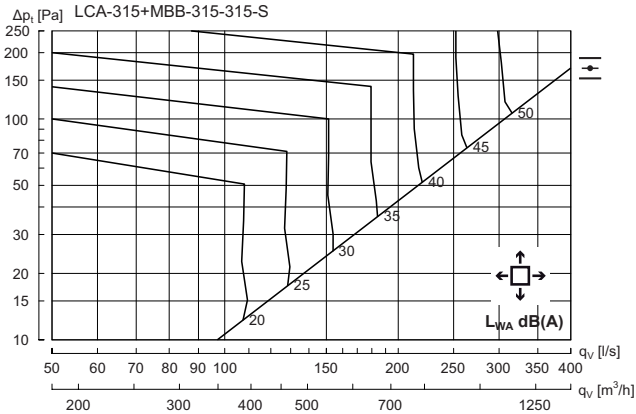
Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	9	7	-2	-3	-5	-10	-15	-21

Formo - Ceiling diffuser

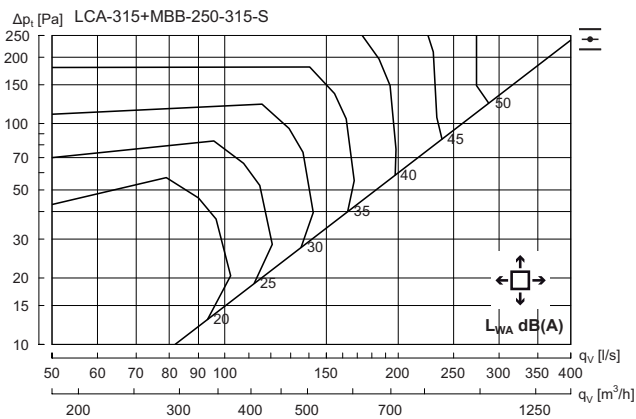
LCA

Technical data

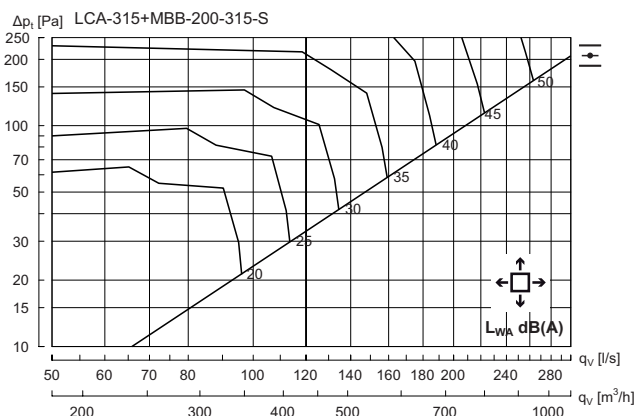
LCA 315 + MBB-S - Supply air



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

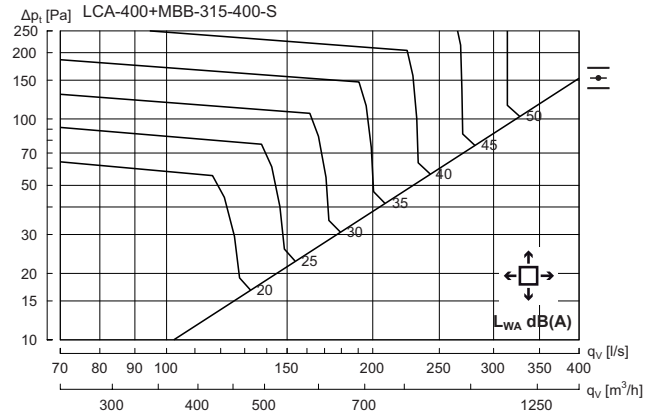


Hz	63	125	250	500	1K	2K	4K	8K
K_{sk}	14	5	-2	-2	-4	-13	-19	-26

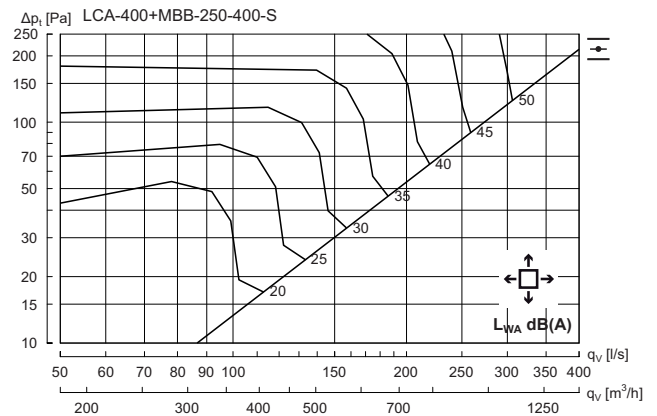


Hz	63	125	250	500	1K	2K	4K	8K
K_{sk}	13	6	-2	-3	-4	-11	-17	-22

LCA 400 + MBB-S - Supply air



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



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

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

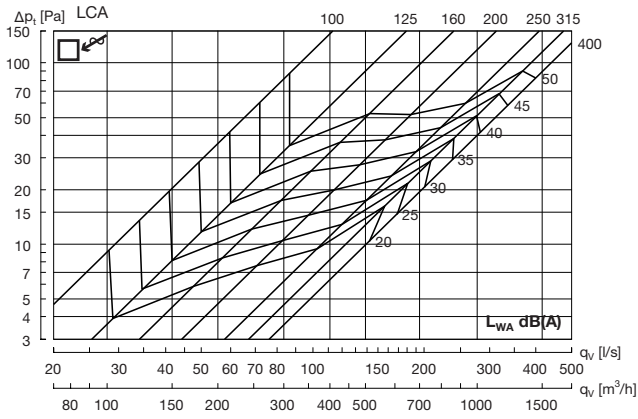
LCA + MBB-S		1 - ways		2 - ways		3 - ways	
duct	LCA	L_{WA}	Δp_t	L_{WA}	Δp_t	L_{WA}	Δp_t
$\varnothing d_1$	$\varnothing d_2$						
100	100	+ 12	x 1.5	+ 8	x 1.2	+ 4	x 1.1
100	125	+ 10	x 1.3	+ 4	x 1.1	+ 2	x 1.05
100	160	+ 9	x 1.3	+ 2	x 1.1	+ 1	x 1
125	125	+ 12	x 1.5	+ 8	x 1.2	+ 4	x 1.1
125	160	+ 14	x 1.5	+ 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

Formo - Ceiling diffuser

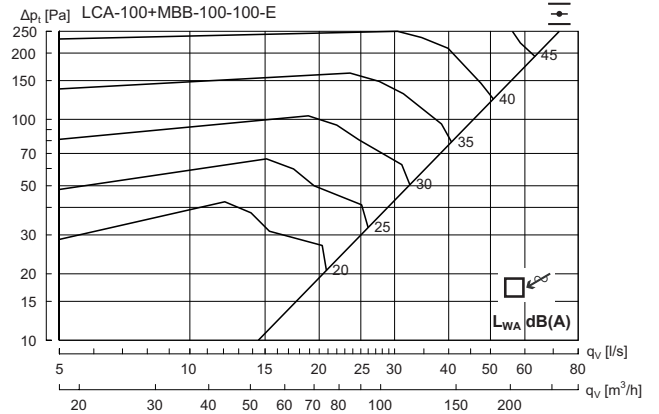
LCA

Technical data

LCA without box - Extract air



LCA 100 + MBB-E - Extract air



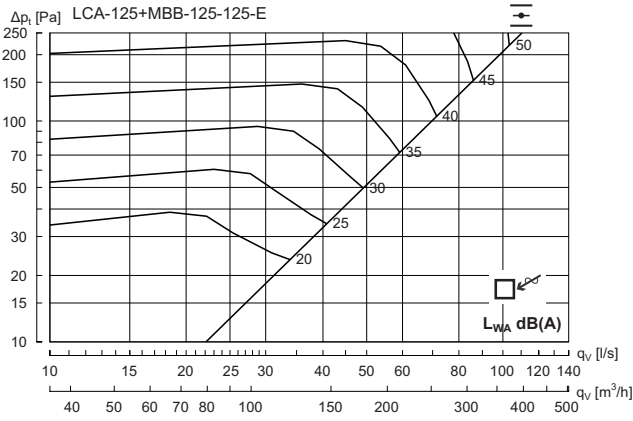
Hz	63	125	250	500	1K	2K	4K	8K
K_{sk}	13	1	3	-2	-7	-10	-15	-22

Formo - Ceiling diffuser

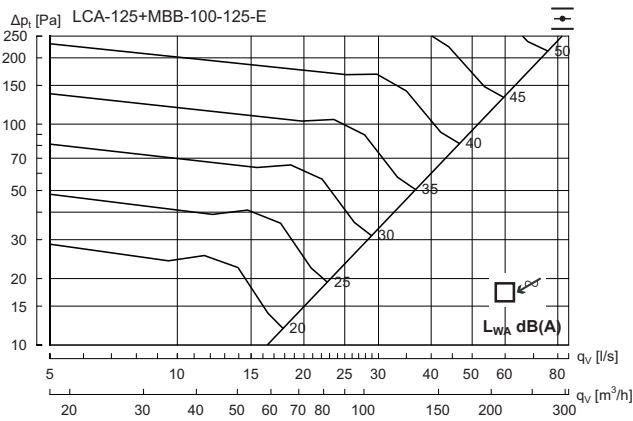
LCA

Technical data

LCA 125 + MBB-E - Extract air

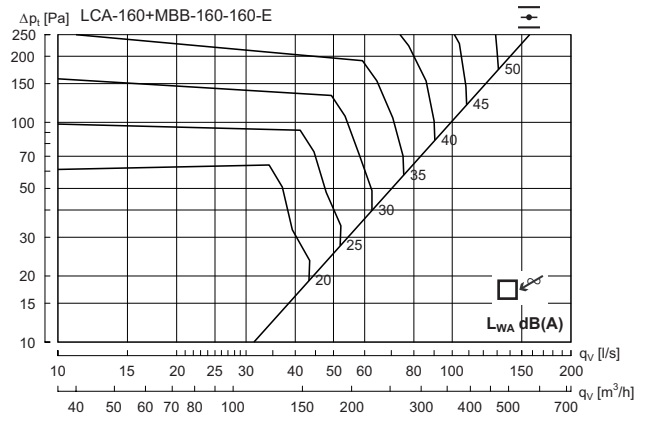


Hz	63	125	250	500	1K	2K	4K	8K
K_{sk}	13	4	1	-2	-5	-12	-15	-22

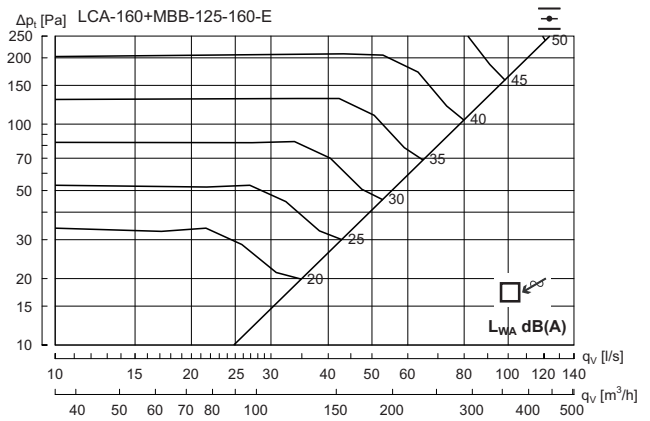


Hz	63	125	250	500	1K	2K	4K	8K
K_{sk}	13	0	4	-2	-8	-11	-16	-22

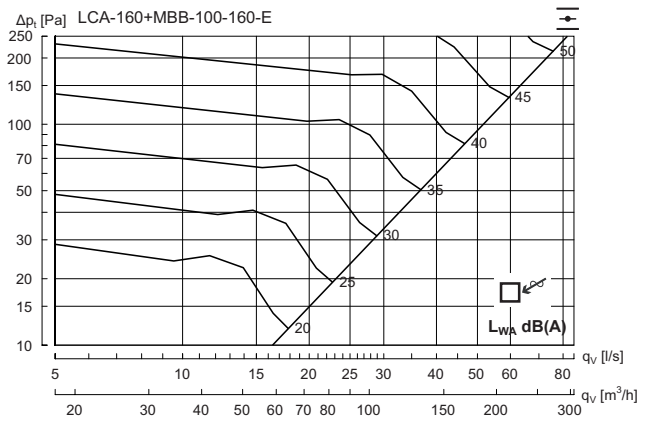
LCA 160 + MBB-E - Extract air



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



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



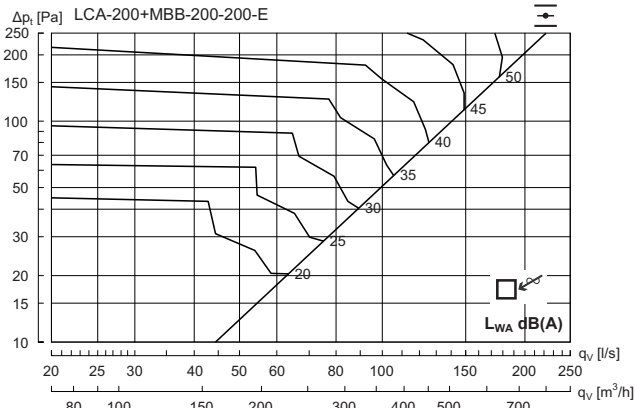
Hz	63	125	250	500	1K	2K	4K	8K
K_{sk}	11	-1	5	-2	-9	-13	-18	-24

Formo - Ceiling diffuser

LCA

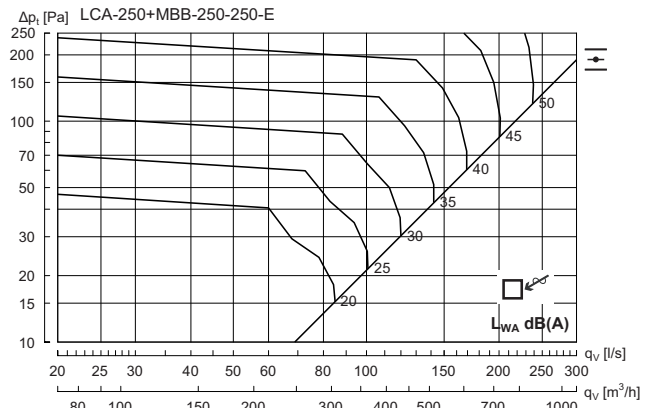
Technical data

LCA 200 + MBB-E - Extract air

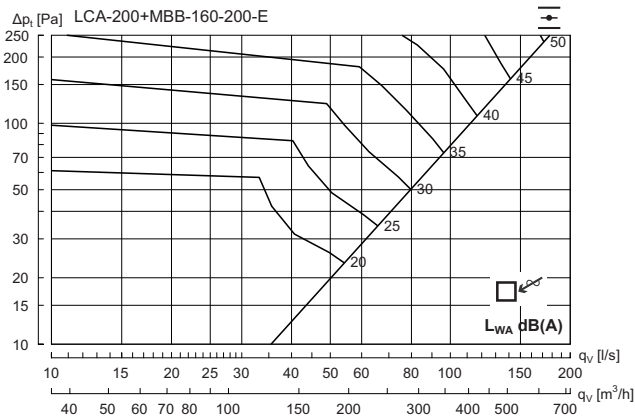


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	14	6	0	-3	-5	-10	-19	-27

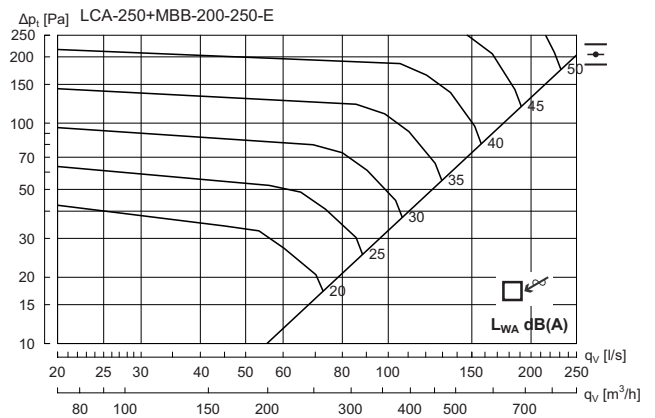
LCA 250 + MBB-E - Extract air



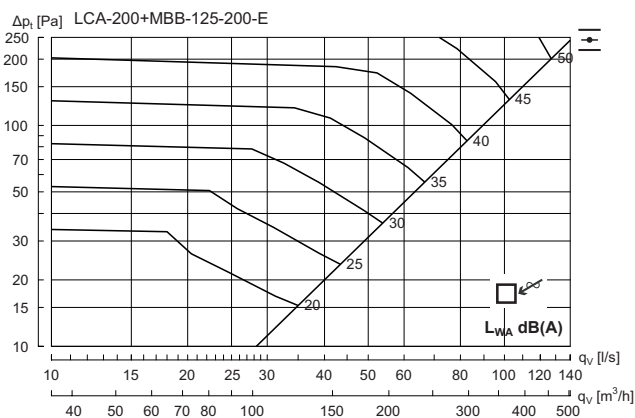
Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	12	4	-1	-3	-3	-12	-19	-30



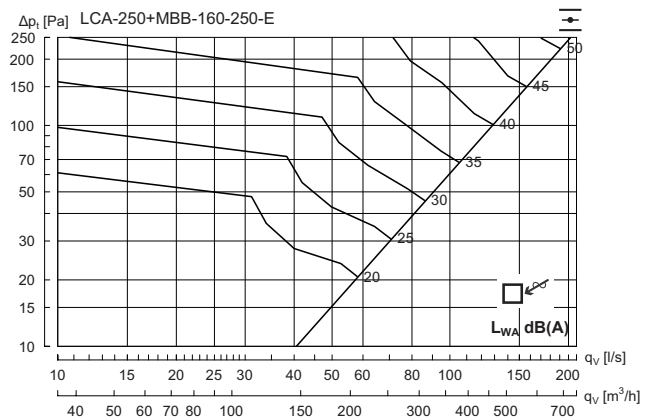
Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	16	7	-1	-4	-6	-10	-14	-20



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}	11	3	0	-2	-5	-11	-14	-21



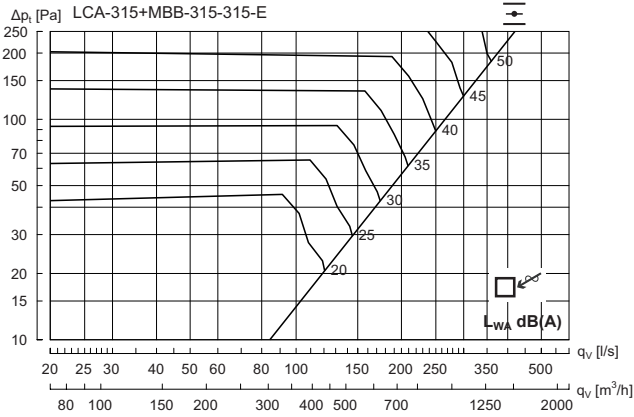
Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	14	6	0	-3	-5	-11	-15	-19

Formo - Ceiling diffuser

LCA

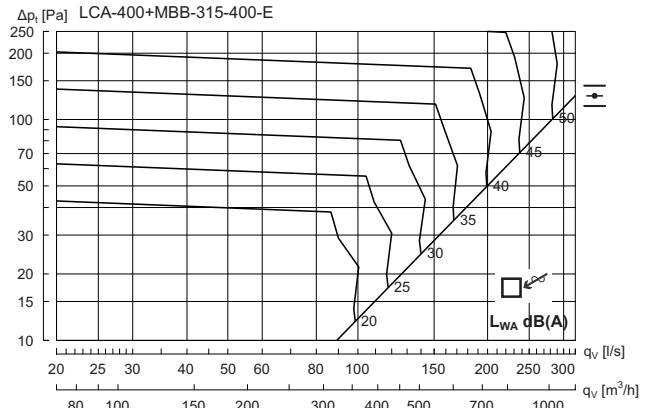
Technical data

LCA 315 + MBB-E - Extract air

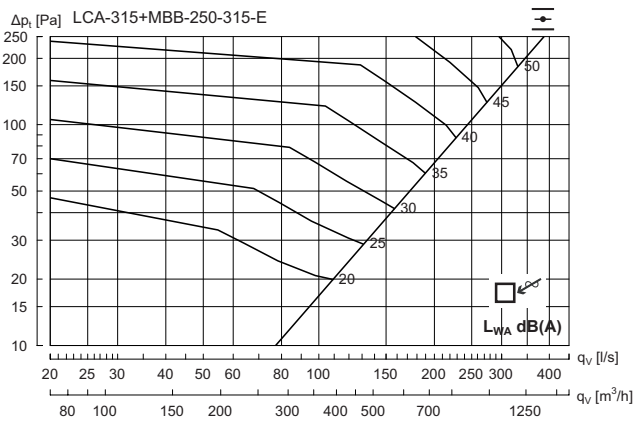


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	13	5	2	-2	-6	-12	-17	-27

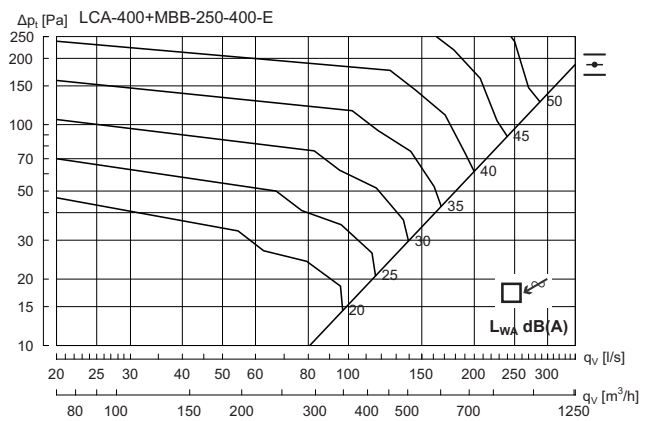
LCA 400 + MBB-E - Extract air



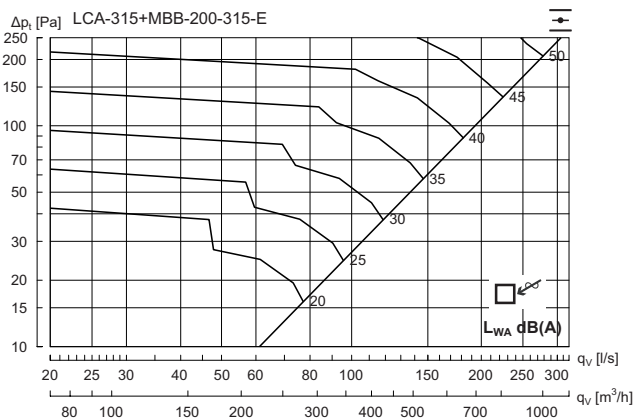
Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	10	5	0	0	-6	-15	-20	-27



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



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



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



Most of us spend the majority of our time indoors. Indoor climate is crucial to how we feel, how productive we are and if we stay healthy.

We at Lindab have therefore made it our most important objective to contribute to an indoor climate that improves people's lives. We do this by developing energy-efficient ventilation solutions and durable building products. We also aim to contribute to a better climate for our planet by working in a way that is sustainable for both people and the environment.

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