

# Lindab **LCC**

Integra - Ceiling diffuser



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# LCC



## Description

LCC is a flush-mounted square diffuser with a circular unperforated face plate for installation in ceiling systems. LCC is suitable for the horizontal supply of cooled air and has a large dynamic range.

Installing an LCC 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.

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.

LCC can be used with VAV plenum box type MBV for use in DCV room control systems and potentially combined with Lindab Pascal System Management.

LCC can be ordered with a presence sensor (-P) and/or with temperature sensor (-T). The sensors are built into the faceplate.

- Simple and stylish appearance
- Large dynamic range
- Can be used for both supply and extract air
- Can be adapted to most ceiling systems
- Plenum box with several damper options

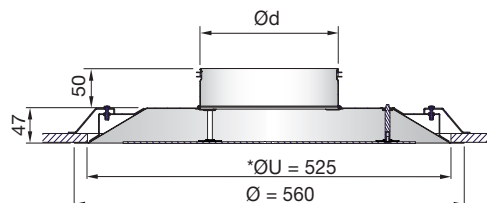
## Order code

<b>Product</b>	<b>LCC</b>	<b>aaa</b>	<b>(-xx)</b>
<b>Type</b>	LCC		
<b>Connection dim.</b>	Ød 125-315		
<b>Sensor type</b>	No sensor (-P) Presence sensor * (-T) Temperature sensor * (-P-T) Presence sensor / Temperature sensor *		

Example: LCC-200-P-T

\* Only size 200-315

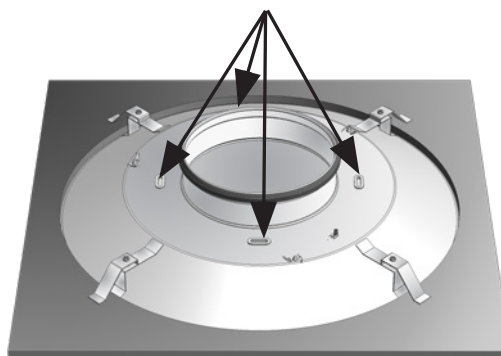
## Dimensions



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

LCC Ød mm	m kg
125	2.8
160	2.7
200	2.7
250	2.6
315	2.5

Ød = 125-250 => LCC has mounting holes for MB.



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

Brackets included for LCC, for details, see the [LCC installation instruction](#).



The unique Puresound foam secures an optimal temperature measure in the diffuser without disturbance from the 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.

## Materials and finish

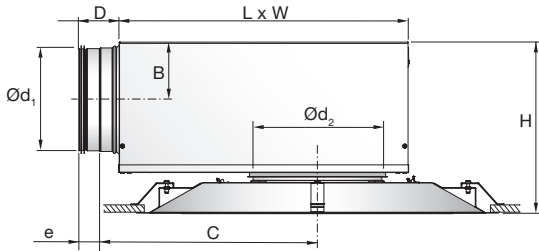
Upper part: Galvanized steel  
 Face plate: Galvanized steel  
 Face plate finish: Powder-coated  
 Standard colours: RAL 9003 or RAL 9010, gloss 30

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

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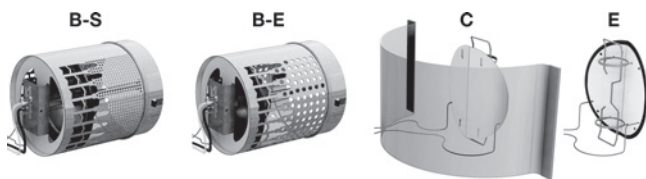
## LCC + MB plenum box



Ød <sub>1</sub> mm	Ød <sub>2</sub>	B	C	D	e	H*	L	W
		mm						
100	125	62	245	78	40	213 - 253	310	260
100	160	62	245	78	40	213 - 253	310	260
125	125	75	291	78	40	238 - 278	376	310
125	160	75	291	78	40	238 - 278	376	310
125	200	75	291	78	40	238 - 278	376	310
160	160	92	352	78	40	273 - 313	459	380
160	200	92	352	78	40	273 - 313	459	380
160	250	92	352	78	40	273 - 313	459	380
200	200	112	425	78	40	313 - 353	565	460
200	250	112	425	78	40	313 - 353	565	460
200	315	112	425	78	40	313 - 353	565	460
250	250	137	534	118	60	363 - 403	698	540
250	315	137	534	118	60	363 - 403	698	540
315	315	170	695	118	60	428 - 468	858	540

\* Using accessory MBZ the H dimension will increase:  
 Ød<sub>2</sub> = 125 - 200 mm => H +40 mm  
 Ød<sub>2</sub> = 250 - 315 mm => H +60 mm

## Damper options

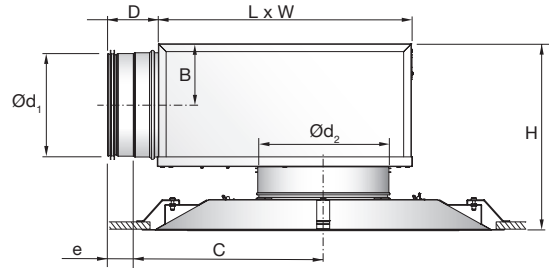


### Order code

Product	MB	a	bbb	ccc	d
Type					
MB					
Damper					
B = Linear cone damper					
C = Blade damper supply					
E = Blade damper extract					
Duct connection Ød <sub>1</sub>					
Ø100-315					
Diffuser dimension Ød <sub>2</sub>					
Ø125-315					
Function (Only for B damper)					
S = Supply air					
E = Extract					

Example 1: LCC-200-P-T-MBB-160-200-S  
 Example 1: LCC-160+MBC-125-160

## LCC + CBC/CBE plenum box



### LCC + CBC/CBE

Ød <sub>1</sub> mm	Ød <sub>2</sub>	B	C	D	e	H*	L	W
		mm						
100	125	65	213	78	40	225 - 265	277	213
100	160	65	231	78	40	225 - 265	312	248
125	160	78	250	78	40	250 - 290	331	248
125	200	78	270	78	40	250 - 290	371	288
160	200	95	295	78	40	285 - 325	396	288
160	250	95	320	78	40	285 - 325	446	338
200	250	115	345	78	40	325 - 365	471	338
200	315	115	377	78	40	325 - 365	536	403
250	315	140	423	118	60	375 - 415	563	405

\* Using accessory MBZ the H dimension will increase:  
 Ød<sub>2</sub> = 125 - 200 mm => H +40 mm  
 Ød<sub>2</sub> = 250 - 315 mm => H +60 mm

## Damper options



### Order code

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

Example 1: LCC-200 + CBC-160-200  
 Example 2: LCC-160 + CBE-125-160

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## Technical data LCC + MB

Following LCC+plenum box data are valid for MBB-S/-E.  
For MBC, MBE and MBV data, go to [www.lindqst.com](http://www.lindqst.com).

For full configuration of your LCC diffuser, go to the [LindQST Airborne calculator](#).

### Capacity

Air flow  $q_v$  [l/s] and [m<sup>3</sup>/h], total pressure  $\Delta p_t$  [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

LCC+MBB-S		$\Delta p_t \geq 50$ Pa 30dB(A)		$\Delta p_t \geq 50$ Pa 35dB(A)	
duct $\varnothing d_1$	LCC $\varnothing d_2$	l/s	m <sup>3</sup> /h	l/s	m <sup>3</sup> /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

## Sound attenuation

Sound attenuation of the diffusers  $\Delta L$  from duct to room, including and reflection, see table below.

LCC + MBB-S/-E		Centre frequency Hz							
duct $\varnothing d_1$	LCC $\varnothing d_2$	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 guide, see the [MB installation instruction](#).

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# LCC

## Technical data LCC + CBC/CBE

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

### Capacity

Air flow  $q_v$  [l/s] and [m<sup>3</sup>/h], total pressure  $\Delta p_t$  [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

LCC + CBC		$\Delta p_t \geq 50$ Pa 30dB(A)		$\Delta p_t \geq 50$ Pa 35 dB(A)	
duct $\varnothing d_1$	LCC $\varnothing d_2$	l/s	m <sup>3</sup> /h	l/s	m <sup>3</sup> /h
100	125	21	77	51	182
100	160	27	97	62	222
125	160	40	145	77	278
125	200	43	153	91	326
160	200	71	254	104	373
160	250	74	265	124	448
200	250	120	433	152	548
200	315	137	493	166	599
250	315	118	424	163	588

## Sound attenuation

Sound attenuation of the diffusers  $\Delta L$  from duct to room, including and reflection, see table below.

LCC + CBC		Centre frequency Hz							
duct $\varnothing d_1$	LCC $\varnothing d_2$	63	125	250	500	1K	2K	4K	8K
100	125	25	18	16	11	17	20	13	14
100	160	25	11	14	13	16	16	12	11
125	160	22	13	13	14	17	17	11	13
125	200	20	17	14	14	17	14	11	12
160	200	18	10	13	14	17	14	12	10
160	250	23	12	14	14	15	13	11	10
200	250	23	8	12	15	16	13	14	11
200	315	20	9	12	14	15	11	12	10
250	315	17	9	11	16	16	11	11	7

## Balancing

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

## Technical data

### LCC + MBV (Pascal)

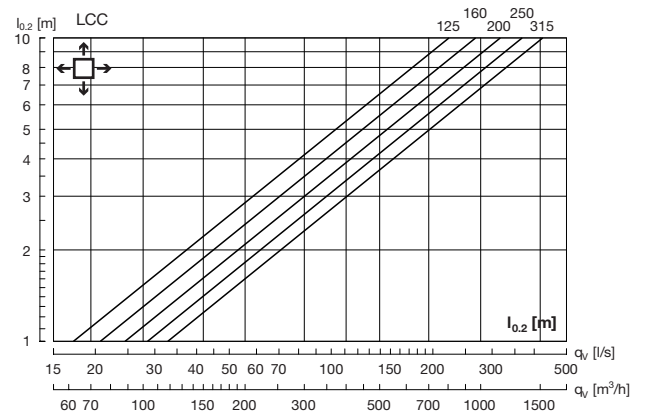
LCC with integrated sensors only fits with MBV. Because of the inside cable connection.

Go to [www.lindQST.com](http://www.lindQST.com) to find details about the MBV plenum box and the [Pascal solutions](#).

## 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.



## Accuracy of temperature measurement with integrated temperature sensor.

### Product accuracy

The below accuracy only applies when supplying air to the room with up to 8K colder than the room temperature. The accuracy stated below is based on temperature difference between the integrated temperature sensor and a reference sensor 2 cm below the diffuser.

- At flow > 20 l/s                    ±0.4°C
- At flow ≤ 20 l/s                    ±0.7°C

The accuracy of the temperature measurements will improve when supplying air closer to isothermal conditions.

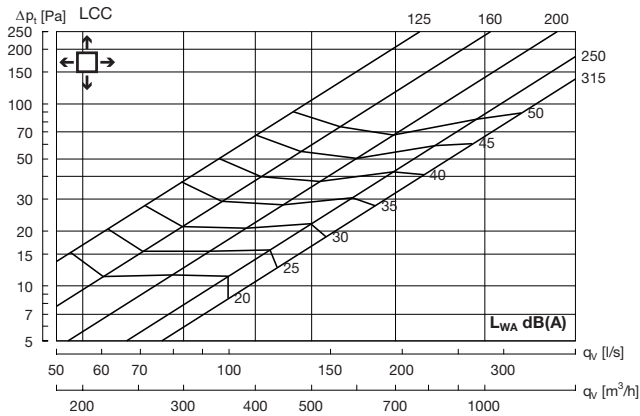
If heating with supply air, be aware of the effects of room temperature gradients.

# Integra - Ceiling diffuser

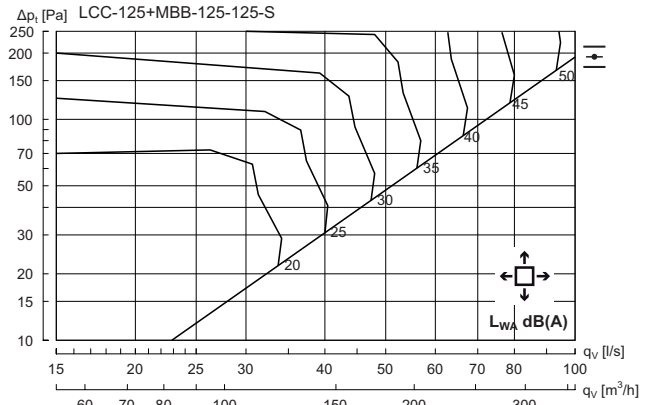
LCC

## Technical data

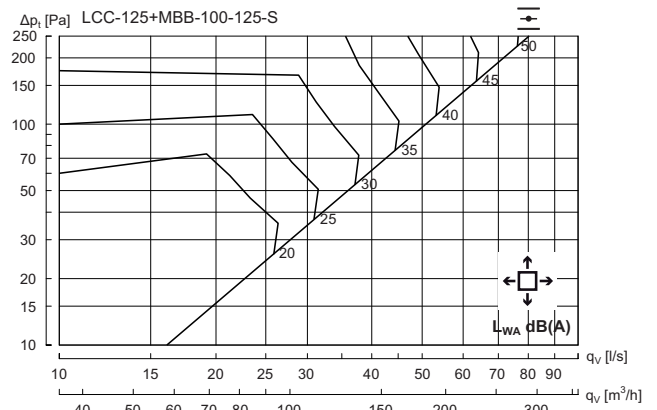
### LCC without box - supply air



### LCC 125 + MBB-S - Supply air



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



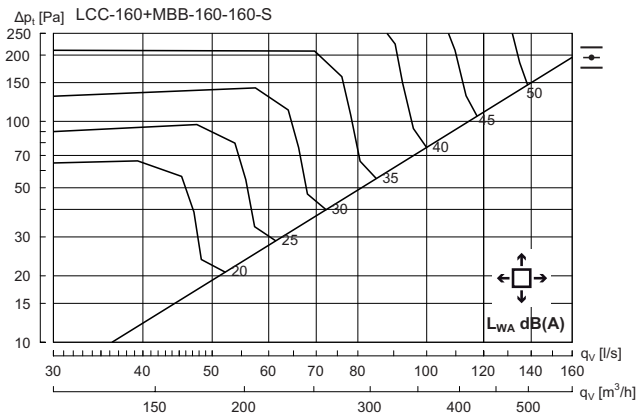
Hz	63	125	250	500	1K	2K	4K	8K
$K_{ok}$	10	4	2	-2	-6	-10	-17	-23

# Integra - Ceiling diffuser

# LCC

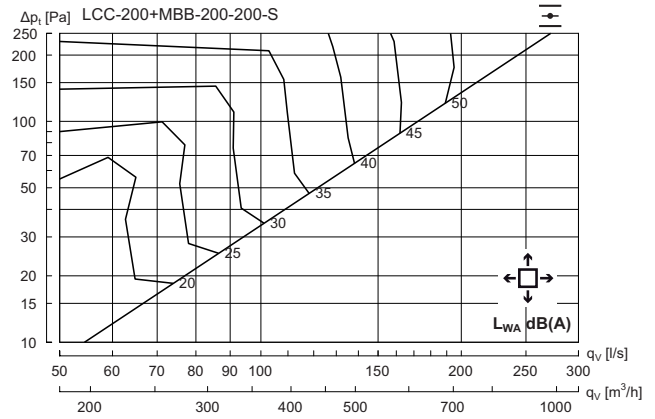
## Technical data

### LCC 160 + MBB-S - Supply air

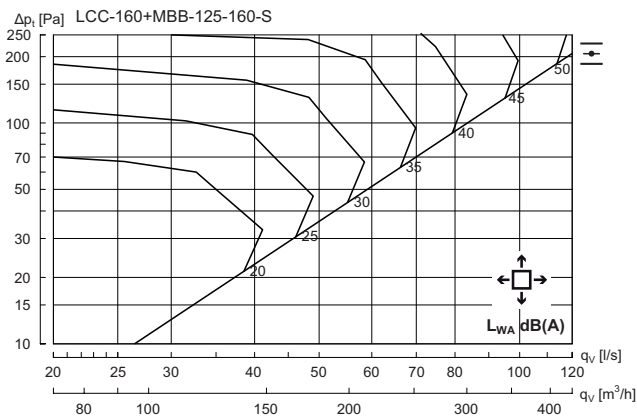


Hz	63	125	250	500	1K	2K	4K	8K
$K_{sk}$	13	8	0	-3	-6	-10	-19	-25

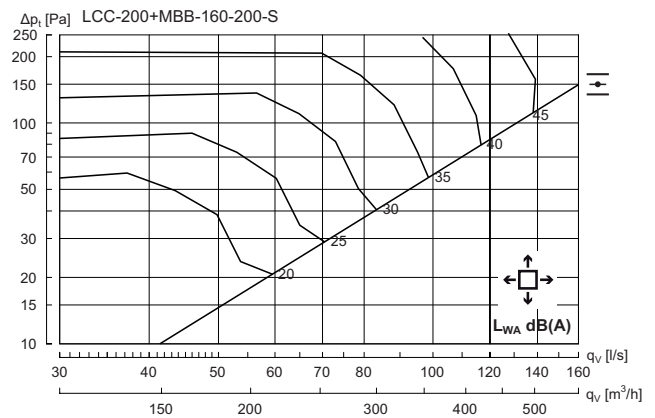
### LCC 200 + MBB-S - Supply air



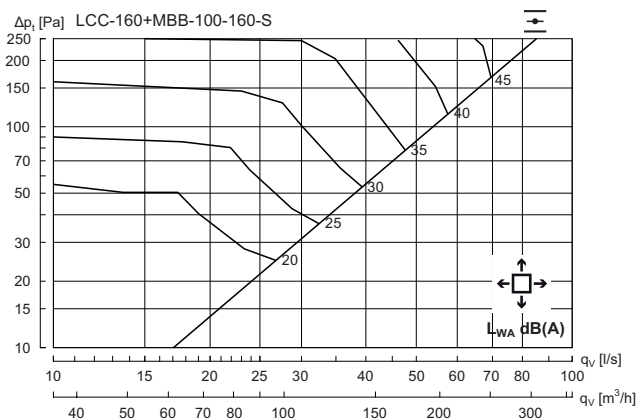
Hz	63	125	250	500	1K	2K	4K	8K
$K_{sk}$	12	8	0	-3	-5	-14	-21	-24



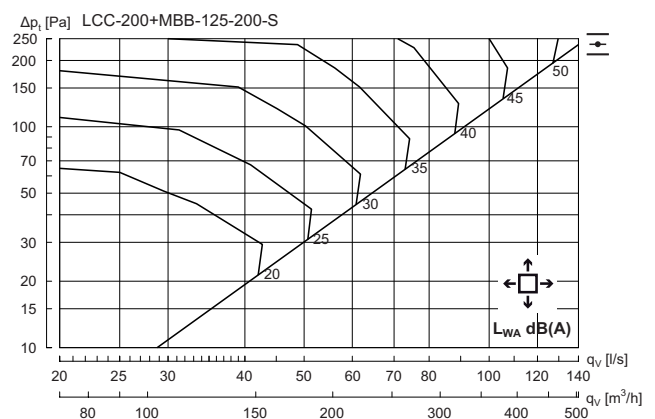
Hz	63	125	250	500	1K	2K	4K	8K
$K_{sk}$	9	8	1	-3	-6	-11	-16	-22



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



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



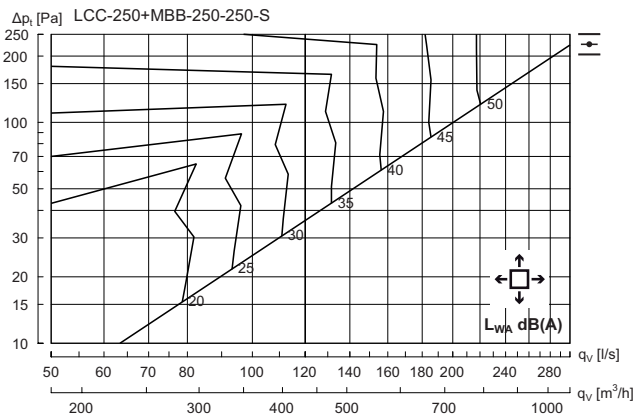
Hz	63	125	250	500	1K	2K	4K	8K
$K_{sk}$	6	6	0	-3	-5	-9	-16	-21

# Integra - Ceiling diffuser

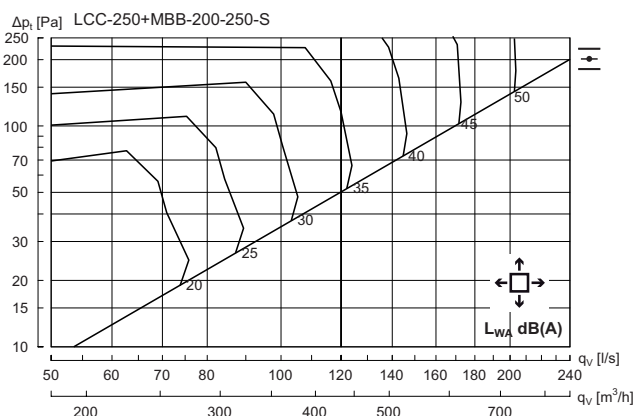
# LCC

## Technical data

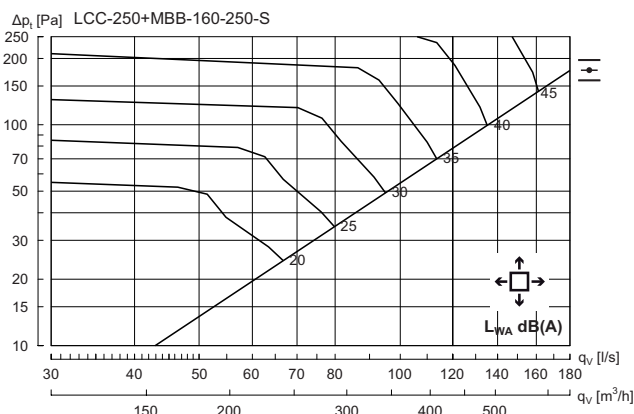
### LCC 250 + MBB-S - Supply air



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

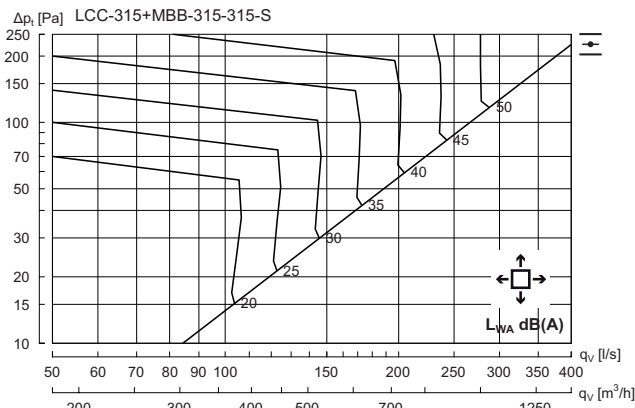


Hz	63	125	250	500	1K	2K	4K	8K
$K_{ok}$	13	8	-1	-2	-5	-13	-20	-26

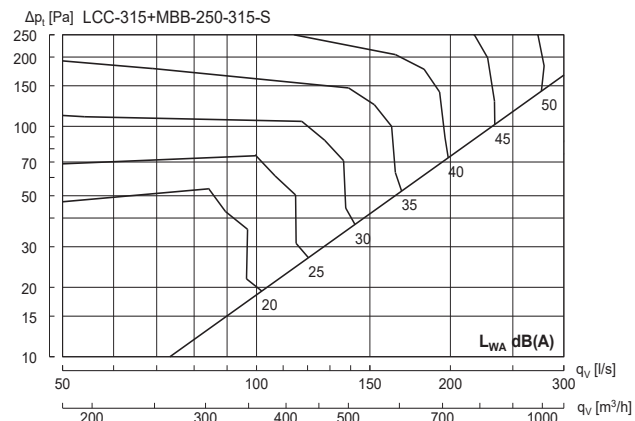


Hz	63	125	250	500	1K	2K	4K	8K
$K_{ok}$	13	7	0	-4	-5	-11	-16	-22

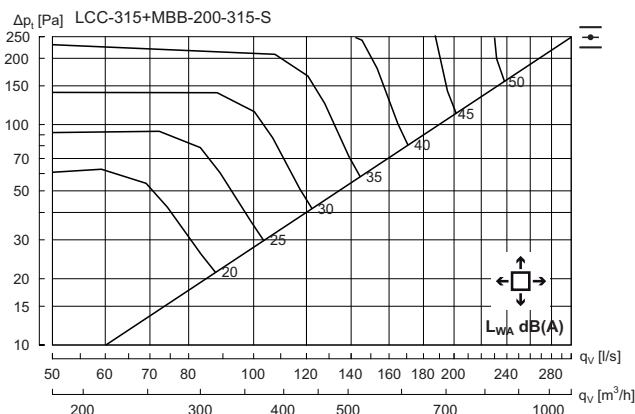
### LCC 315 + MBB-S - Supply air



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

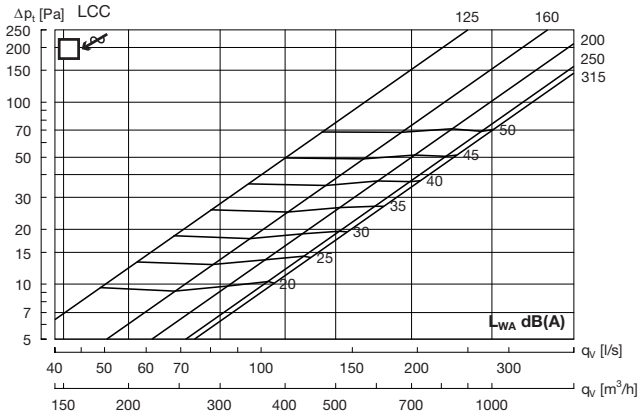


# Integra - Ceiling diffuser

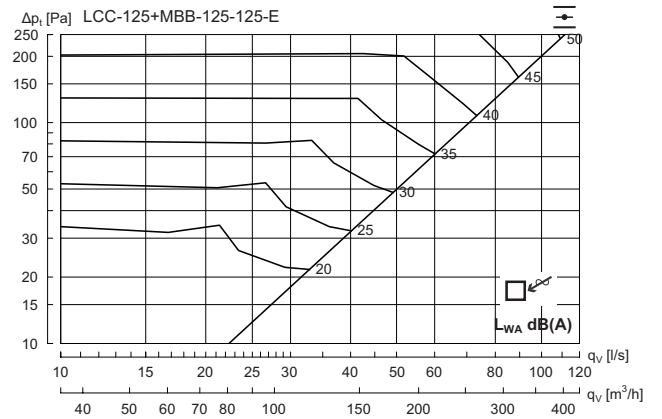
# LCC

## Technical data

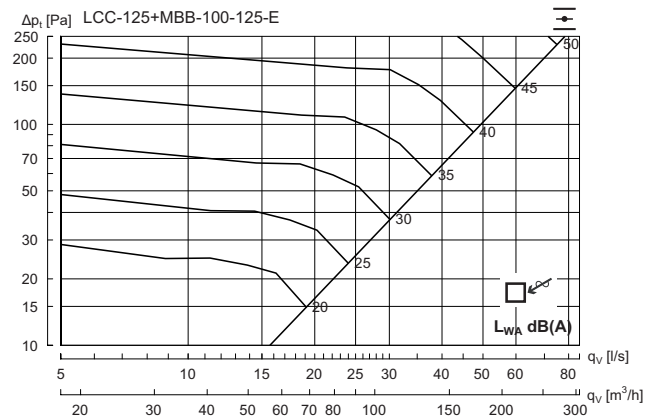
### LCC without box - Extract



### LCC 125 + MBB-E - Extract air



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



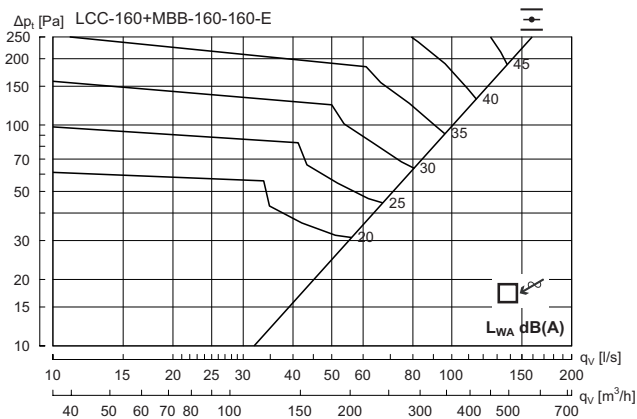
Hz	63	125	250	500	1K	2K	4K	8K
$K_{\text{ok}}$	13	-1	3	-1	-9	-11	-17	-23

# Integra - Ceiling diffuser

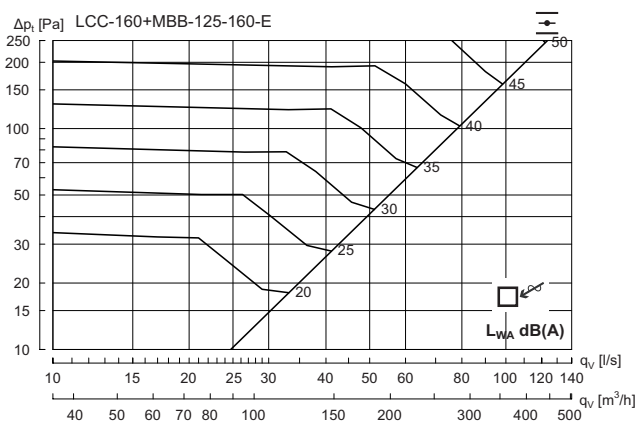
# LCC

## Technical data

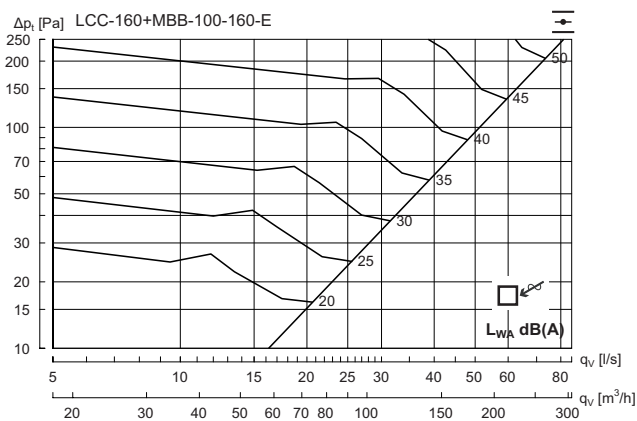
### LCC 160 + MBB-E - Extract air



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

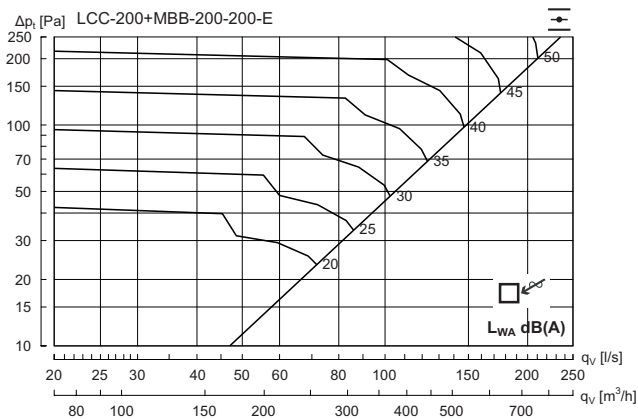


Hz	63	125	250	500	1K	2K	4K	8K
$K_{ok}$	14	5	0	-1	-6	-11	-15	-21

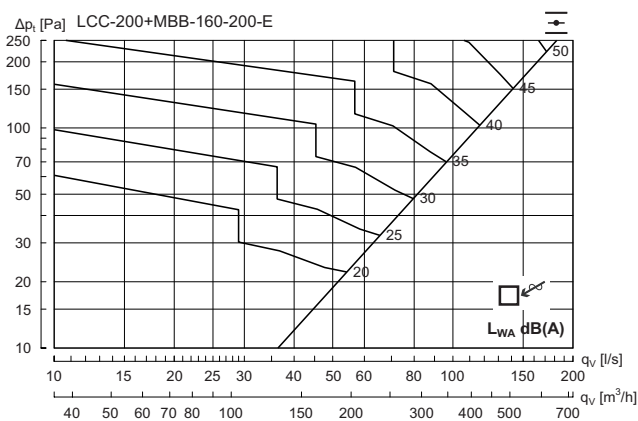


Hz	63	125	250	500	1K	2K	4K	8K
$K_{ok}$	11	3	2	0	-8	-13	-17	-23

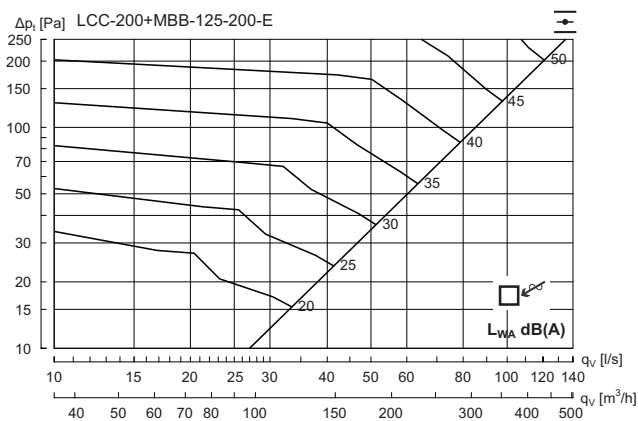
### LCC 200 + MBB-E - Extract air



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



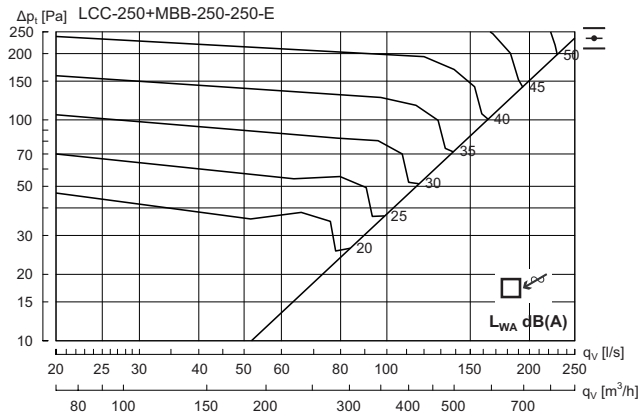
Hz	63	125	250	500	1K	2K	4K	8K
$K_{ok}$	11	3	-1	-2	-5	-10	-16	-22

# Integra - Ceiling diffuser

# LCC

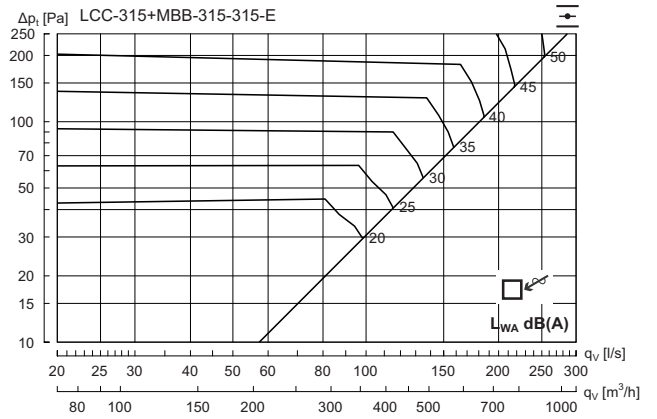
## Technical data

### LCC 250 + MBB-E - Extract air

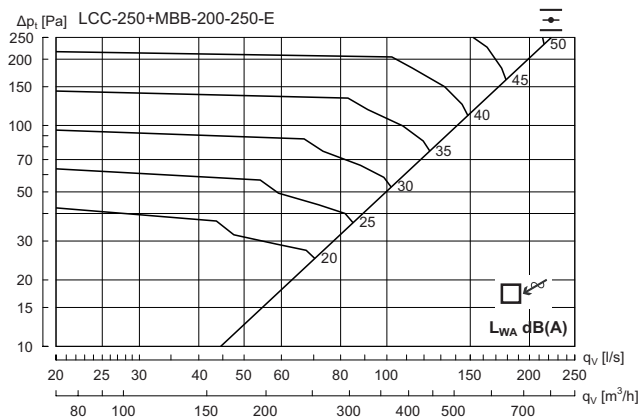


Hz	63	125	250	500	1K	2K	4K	8K
$K_{sk}$	11	4	1	-2	-5	-11	-17	-25

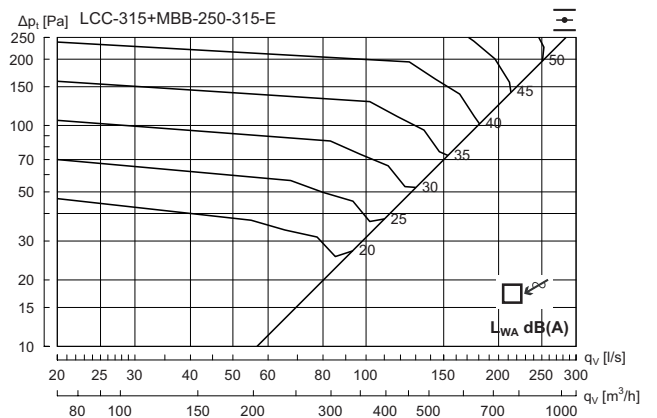
### LCC 315 + MBB-E - Extract air



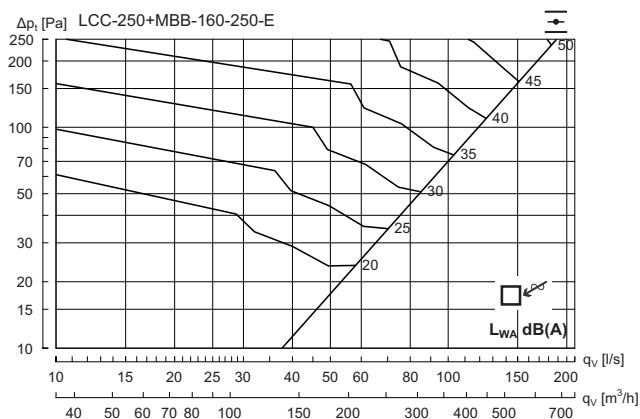
Hz	63	125	250	500	1K	2K	4K	8K
$K_{sk}$	12	4	2	-3	-6	-9	-18	-27



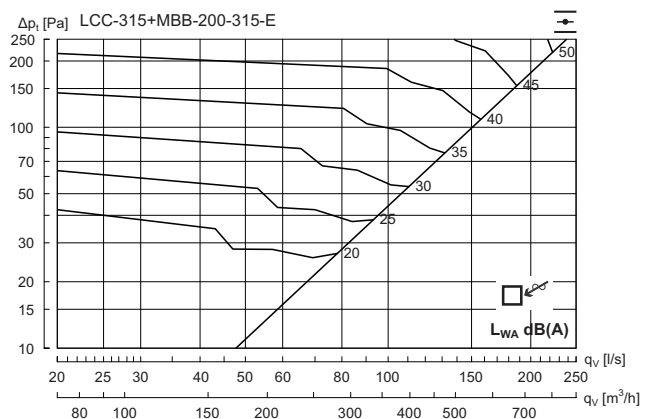
Hz	63	125	250	500	1K	2K	4K	8K
$K_{sk}$	14	4	0	-2	-6	-11	-16	-25



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



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



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



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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