

Plain diffuser

CRL



Description

CRL is a circular diffuser with an unperforated adjustable face plate and can be used for both supply and extract 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. The CRL can be equipped with accessories of various types in order to achieve optimal function.

Installing a CRL 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 or vertical supply air patterns
- Plenum box with several damper options

Maintenance

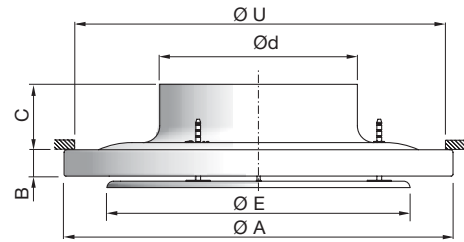
The face plate can be removed to enable cleaning of internal parts or to gain access to the duct or plenum box. The visible parts off the diffuser can be wiped with a damp cloth.

Order code

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

Example: CRL-200

Dimensions



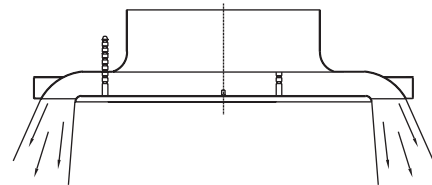
CRL Ød	ØA	B	C	ØE	ØU*	m
mm	mm	mm	mm	mm	mm	kg
100	188	15	60	146	170	0.30
125	238	20	65	180	210	0.50
160	288	25	65	220	255	0.60
200	388	28	72	300	355	1.10
250	488	33	82	380	390	1.60
315	588	33	97	490	465	2.50
400	720	40	100	590	670	3.80

* ØU = Ceiling grid opening

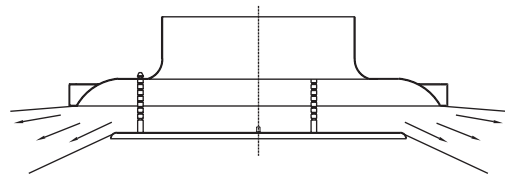
Dispersal patterns

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 colours:RAL 9003 and RAL 9010, gloss 30

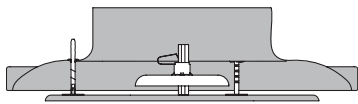
The diffuser is available in other colours. Please contact Lindab's sales department for further information.

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Accessories

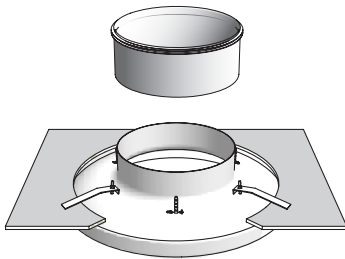
CAZ - Balancing damper



MBZ - Extension piece



DCZ - Mounting brackets (set)

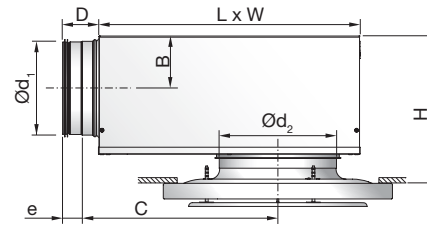


Order code - accessories

Product aaa bbb
 Type _____
 Size _____

Example: CAZ-125

CRL + MB plenum box



Ød ₁	Ød ₂	B	C	D	e	H*	L	W
mm		mm						
100	100	62	245	78	40	175 - 210	310	260
100	125	62	245	78	40	175 - 205	310	260
100	160	62	245	78	40	175 - 205	310	260
125	125	75	291	78	40	200 - 230	376	310
125	160	75	291	78	40	200 - 230	376	310
125	200	75	291	78	40	210 - 245	376	310
160	160	92	352	78	40	235 - 265	459	380
160	200	92	352	78	40	245 - 280	459	380
160	250	92	352	78	40	250 - 290	459	380
200	200	112	425	78	40	285 - 320	565	460
200	250	112	425	78	40	290 - 332	565	460
200	315	112	425	78	40	290 - 345	565	460
250	250	137	514	118	60	340 - 380	698	540
250	315	137	514	118	60	340 - 395	698	540
250	400	137	514	118	60	370 - 400	698	540
315	315	170	675	118	60	405 - 460	858	540
315	400	170	675	118	60	435 - 465	858	540

USING CRL + MBB => ALWAYS USE MBZ

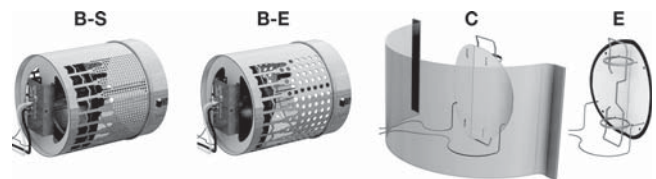
* Using accessory MBZ the H dimension will increase:

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 Ød₁ _____
 Ø100-315 _____
Diffuser dimension Ød₂ _____
 Ø100-400 _____
Function (Only for B damper) _____
 S = Supply air E = Extract

Example 1: CRL-200+MBB-160-200-S

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

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Technical data

Following CRL+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

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

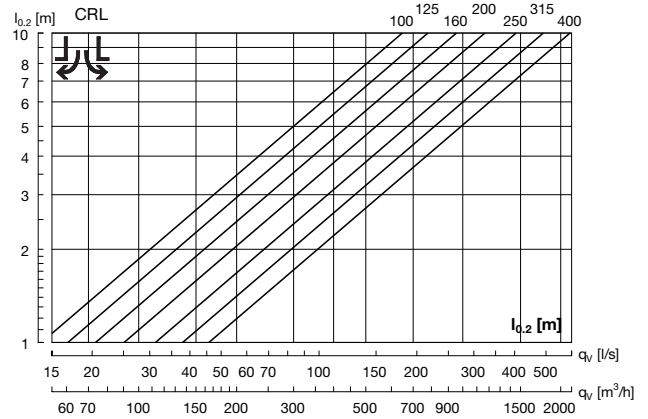
Sound attenuation

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

CRL + MBB-S/-E		Centre frequency Hz							
duct $\varnothing d_1$	CRL $\varnothing d_2$	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 $\varnothing d$	Correction factor
100	3,1
125	2,7
160	2,7
200	2,7
250	2,6
315	2,4
400	2,3

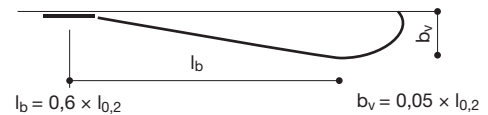
Air jet distribution

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

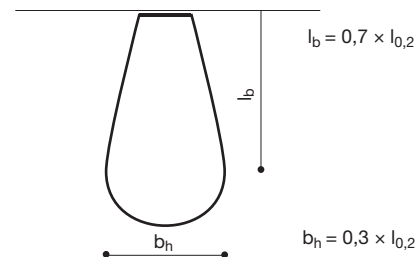
b_v = Depth of the air jet on a vertical plane.

b_h = Width of the air jet on a horizontal plane

Horizontal supply air pattern



Vertical supply air pattern



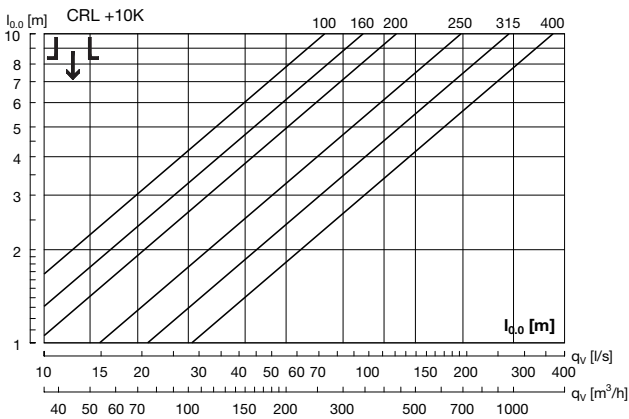
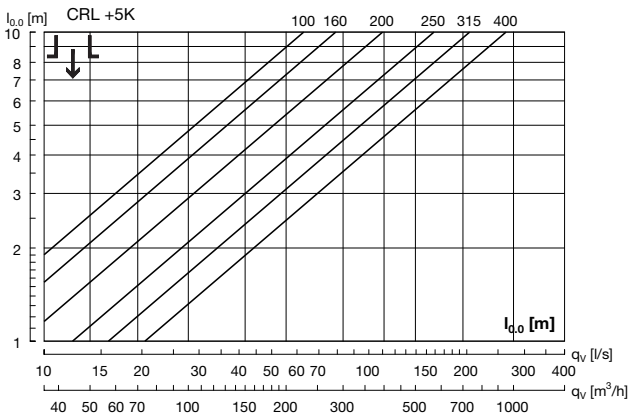
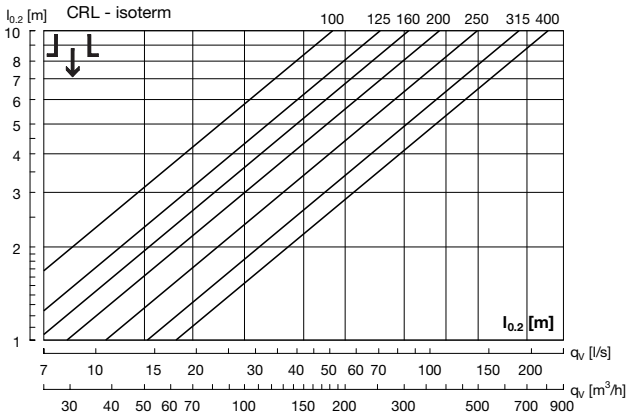
Plain diffuser

CRL

Technical data

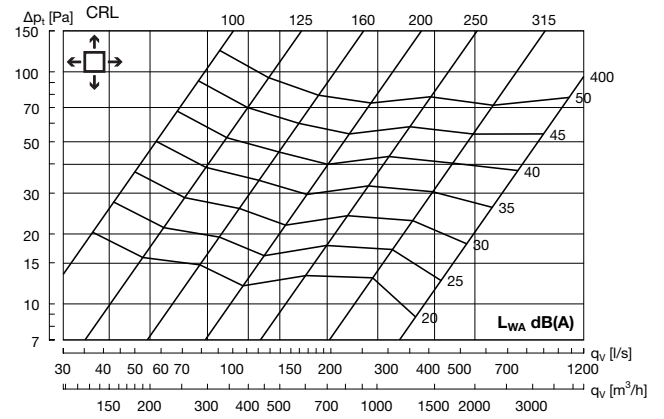
Throw $l_{0,2}$ / turning point $l_{0,0}$

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.

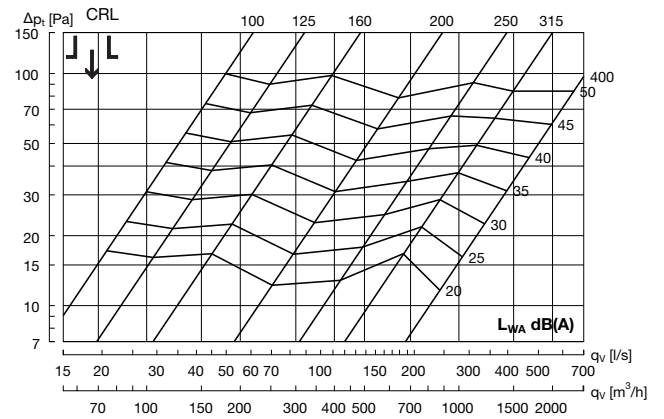


CRL without box - Supply air

Supply air - horizontal



Supply air - vertical

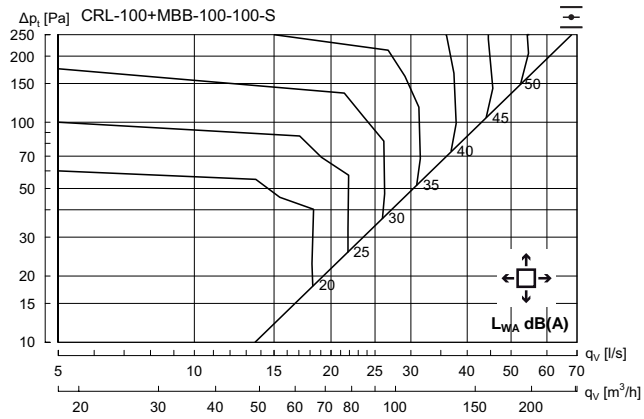


Plain diffuser

CRL

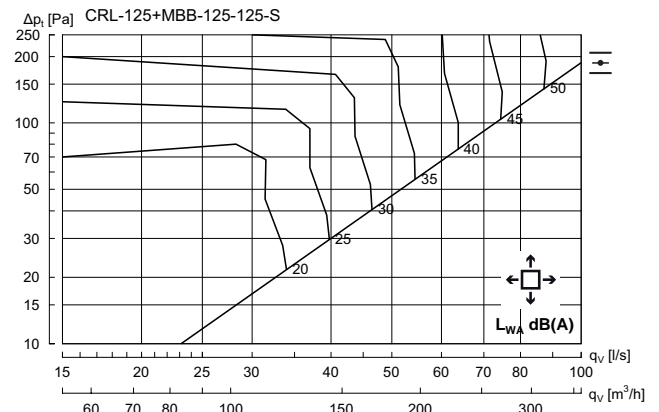
Technical data

CRL 100 + MBB-S - Supply air

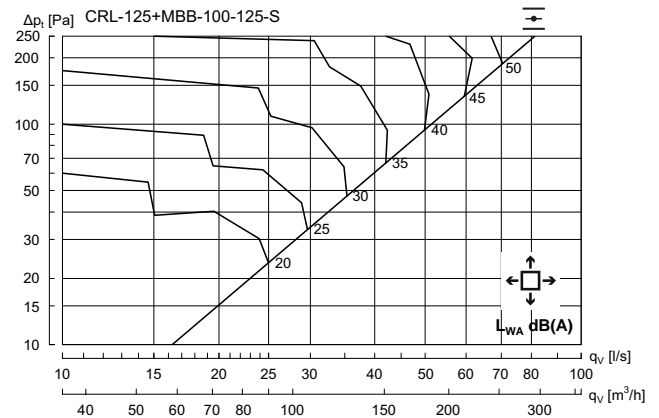


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	12	8	5	-7	-8	-14	-17	-22

CRL 125 + MBB-S - Supply air



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



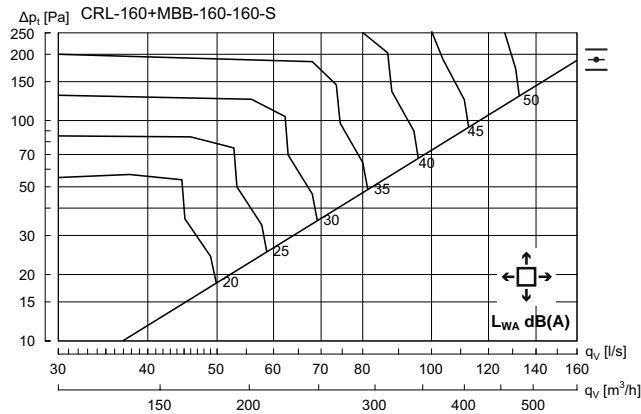
Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	13	8	3	-5	-7	-11	-15	-19

Plain diffuser

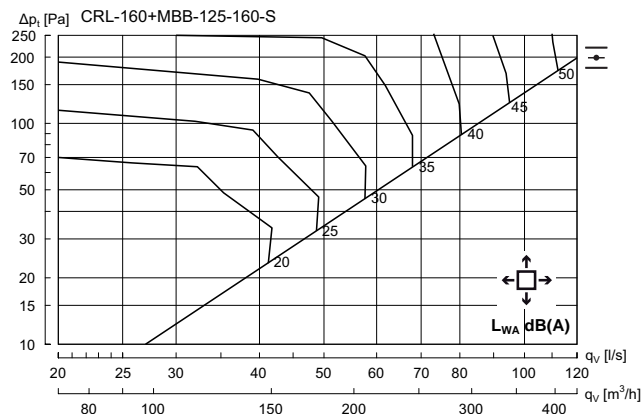
CRL

Technical data

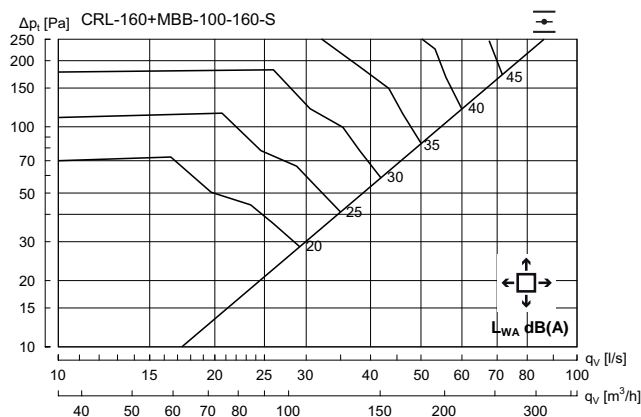
CRL 160 + MBB-S - Supply air



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

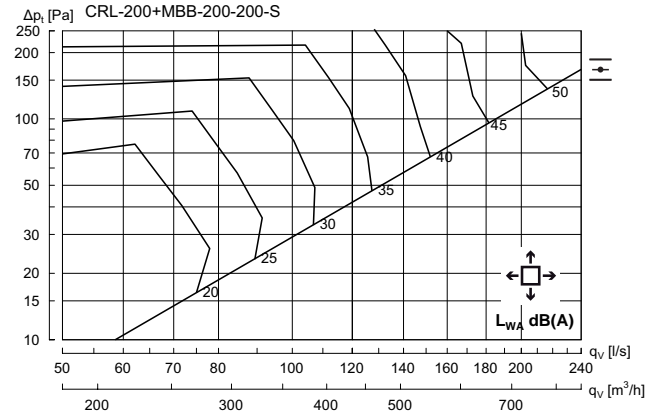


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	12	8	3	-5	-6	-11	-17	-22

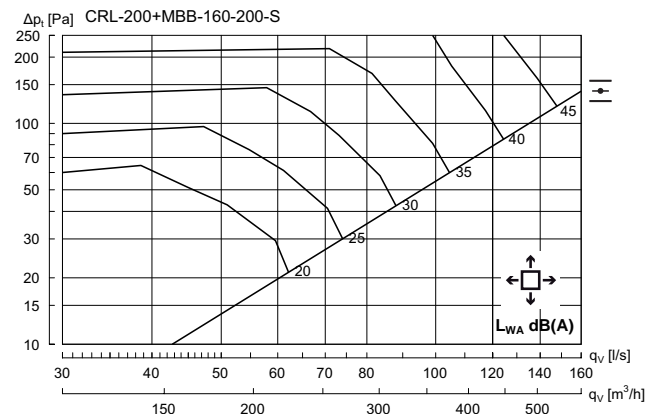


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	9	3	1	-3	-5	-9	-15	-19

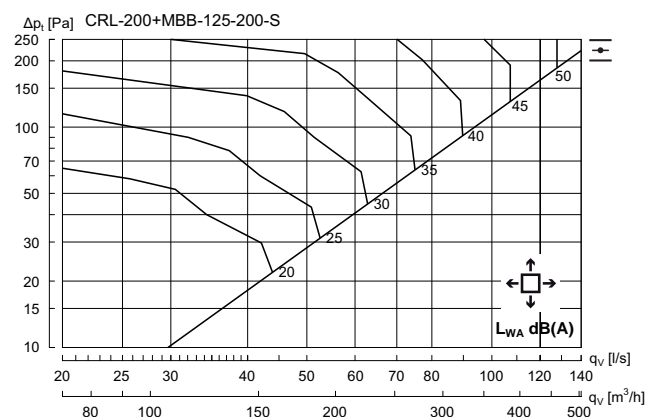
CRL 200 + MBB-S - Supply air



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



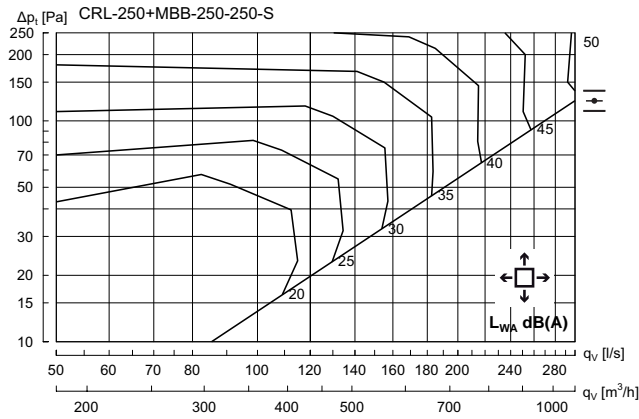
Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	10	5	1	-4	-5	-10	-16	-20

Plain diffuser

CRL

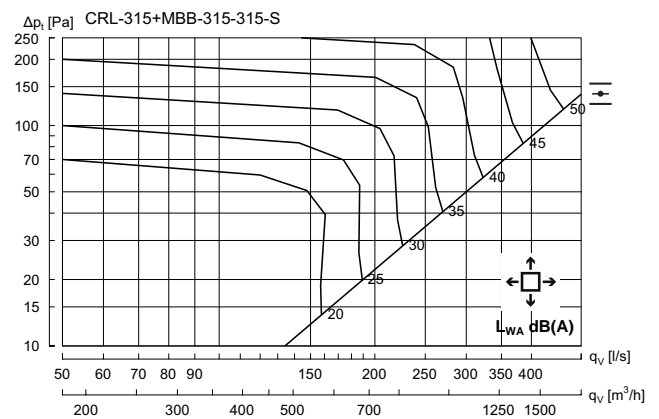
Technical data

CRL 250+ MBB-S - Supply air

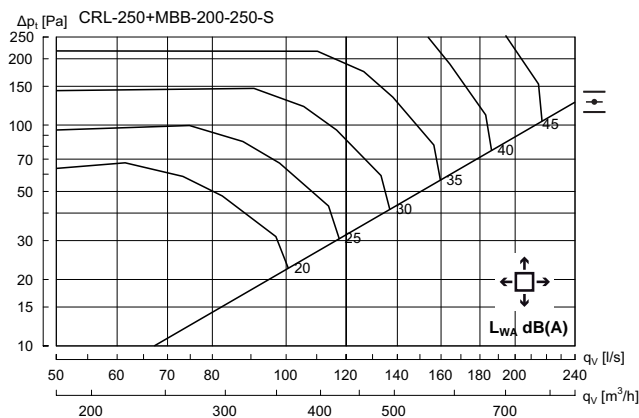


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	15	7	0	-2	-6	-12	-16	-21

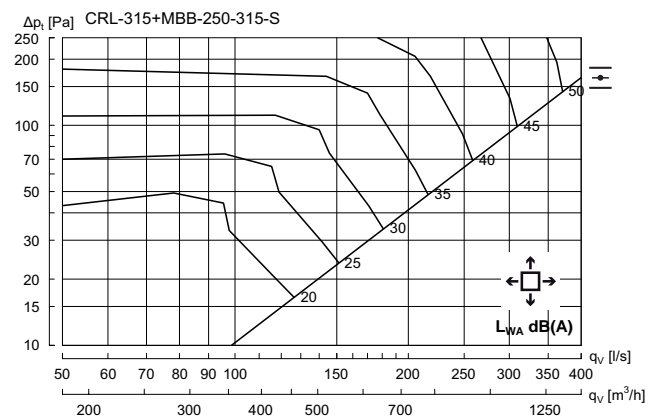
CRL 315 + MBB-S - Supply air



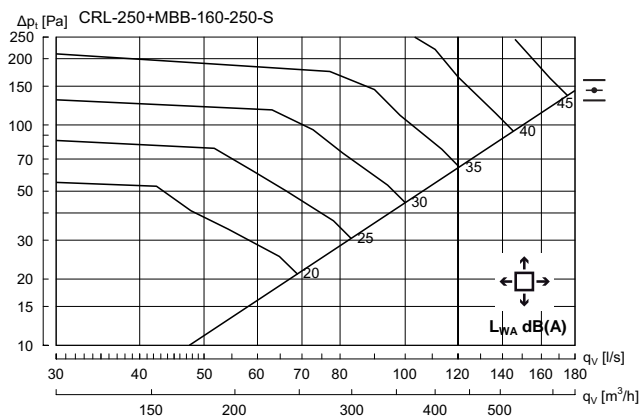
Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	15	4	1	-2	-6	-13	-17	-16



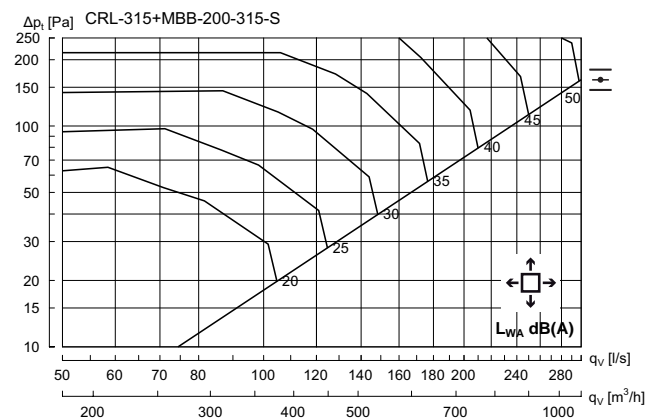
Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	11	7	-1	-2	-5	-12	-17	-22



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	6	1	-3	-5	-10	-15	-21



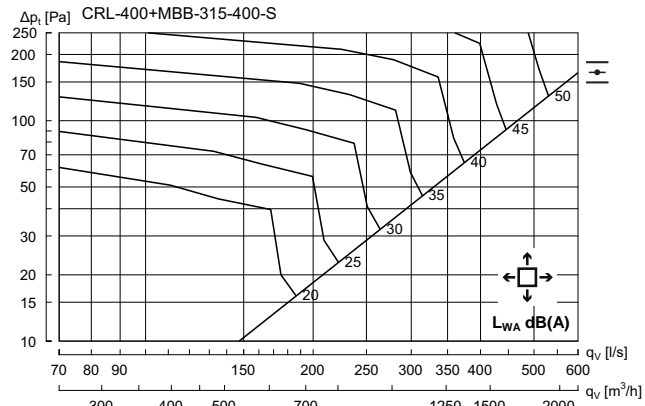
Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	11	7	0	-3	-6	-10	-16	-21

Plain diffuser

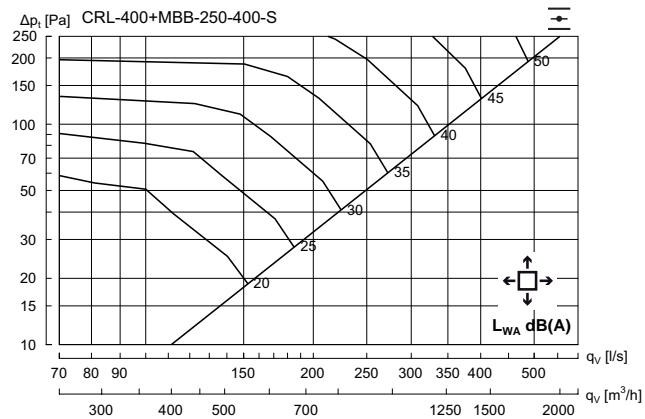
CRL

Technical data

CRL 400+ MBB-S - Supply air



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



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

CRL + MBB-S - Supply air

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

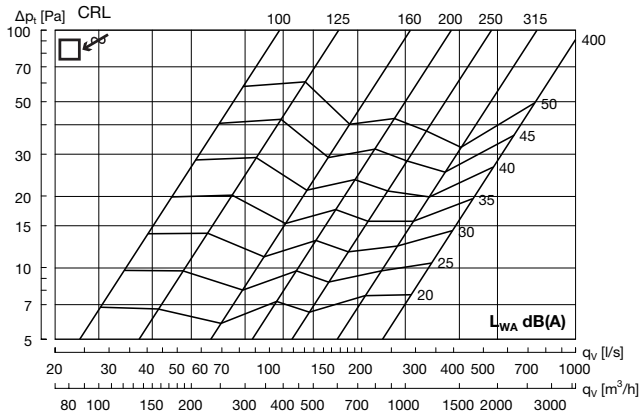
CRL + MBB-S		Correction factor	
duct	CRL	Vertical supply air	
Ød ₁	Ød ₂	L _{WA}	Δp _t
100	100	+ 6	x 1,3
100	125	+ 8	x 1,3
100	160	+ 3	x 1,1
125	125	+ 1	x 1
125	160	+ 8	x 1,2
125	200	+ 1	x 1
160	160	+ 10	x 1,5
160	200	+ 3	x 1,1
160	250	+ 0	x 1
200	200	+ 7	x 1,3
200	250	+ 0	x 1
200	315	+ 1	x 1
250	250	+ -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

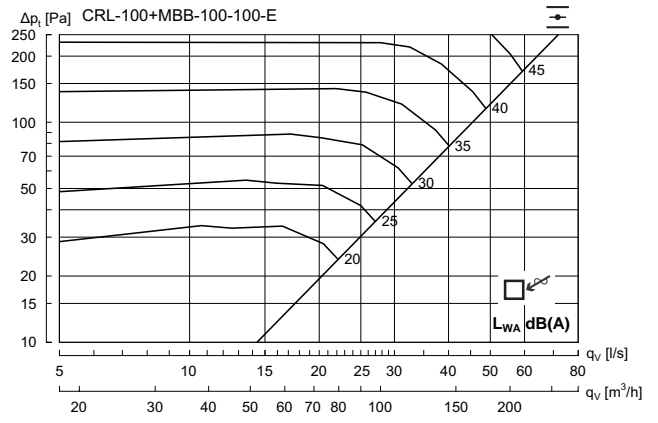
CRL

Technical data

CRL without box - Extract air



CRL 100 + MBB-E - Extract air



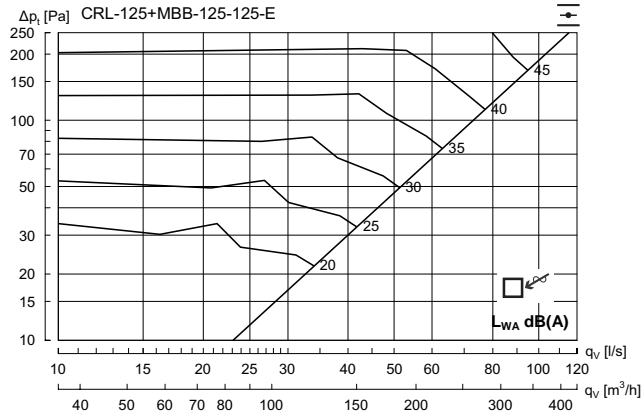
Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	11	0	2	-2	-6	-11	-15	-22

Plain diffuser

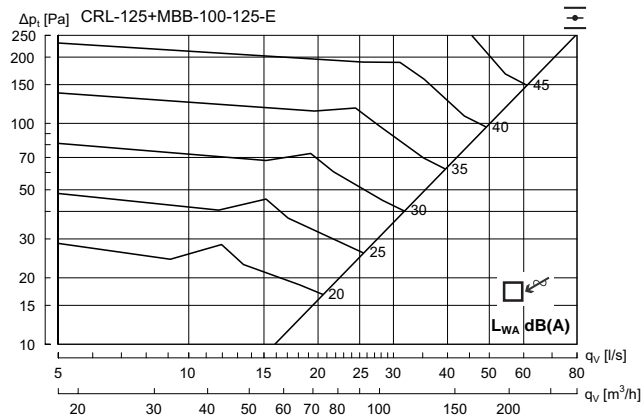
CRL

Technical data

CRL 125 + MBB-E - Extract air

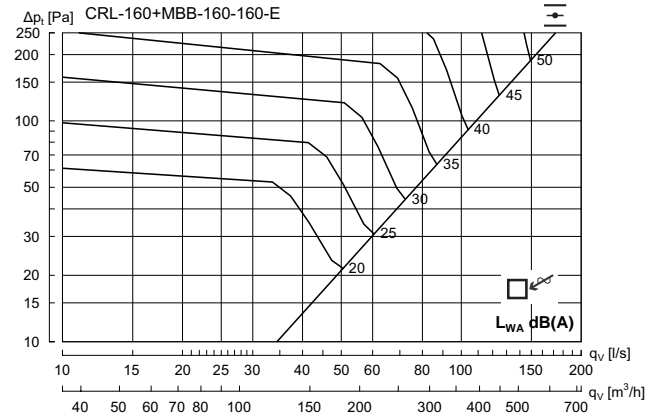


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	14	5	-1	-3	-4	-12	-15	-21

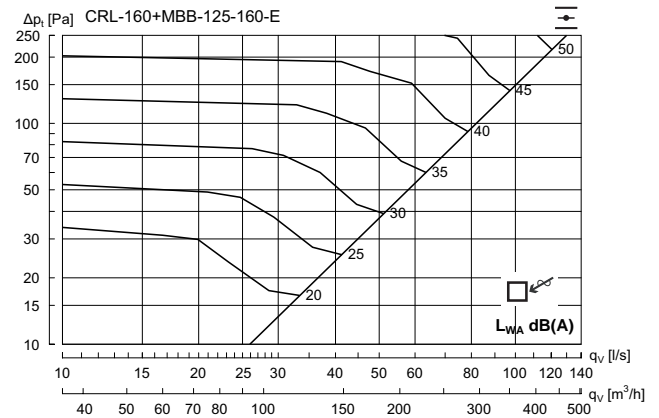


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	13	0	4	-3	-8	-11	-17	-22

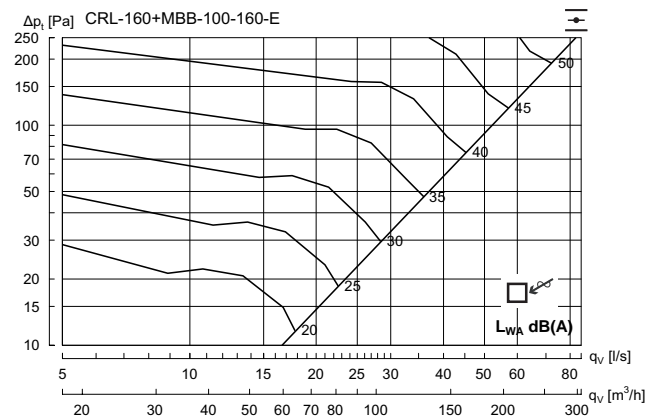
CRL 160 + MBB-E - Extract air



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



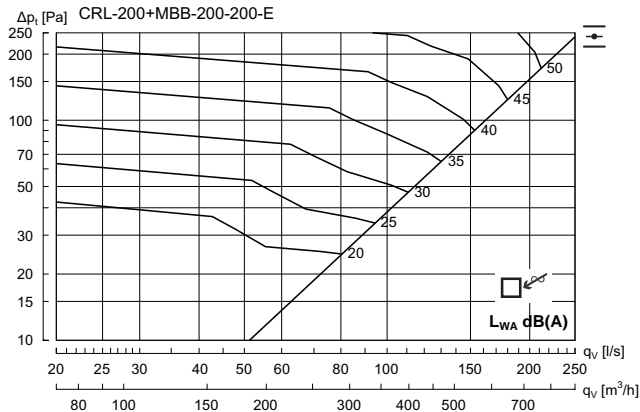
Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	13	0	5	-3	-9	-12	-19	-23

Plain diffuser

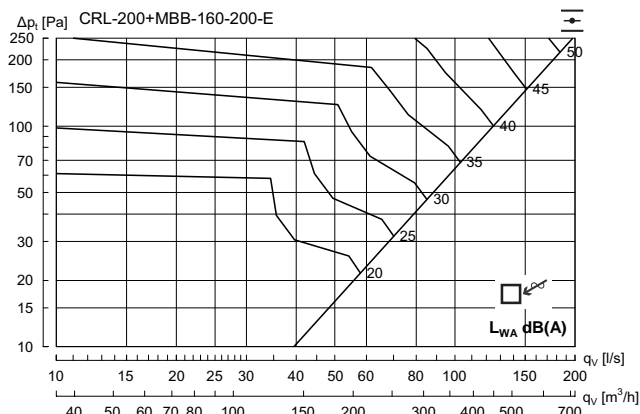
CRL

Technical data

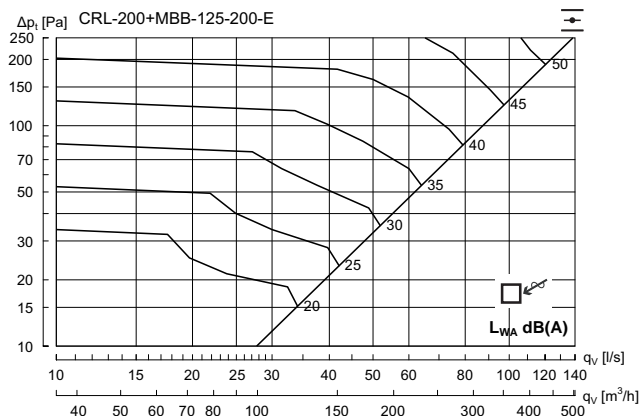
CRL 200 + MBB-E - Extract air



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

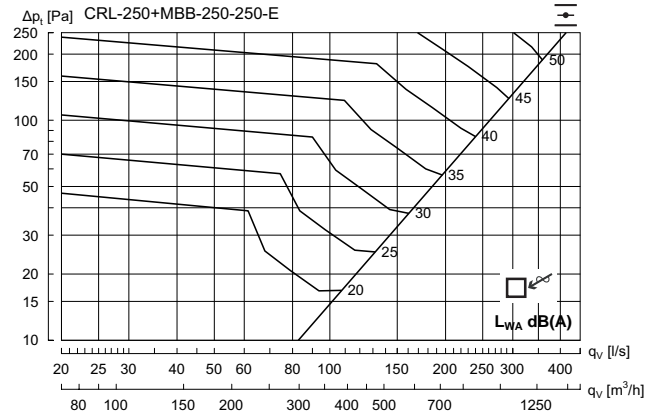


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	14	5	0	-3	-5	-9	-15	-20

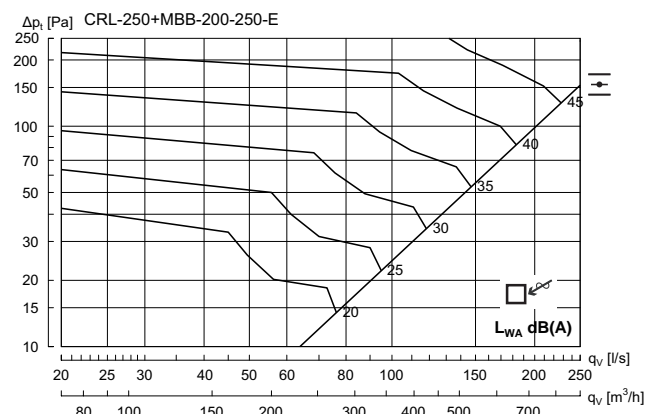


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	9	2	1	-2	-5	-9	-14	-19

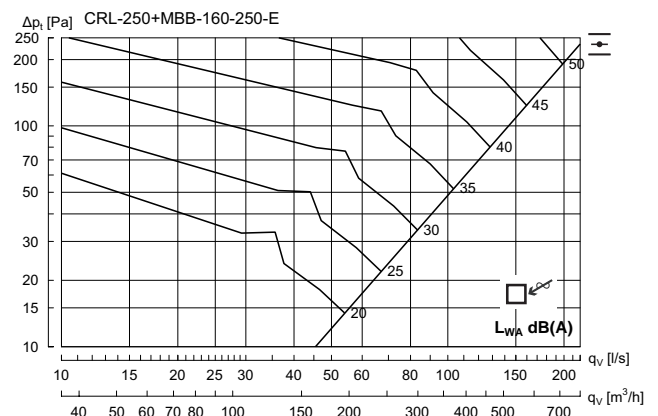
CRL 250 + MBB-E - Extract air



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



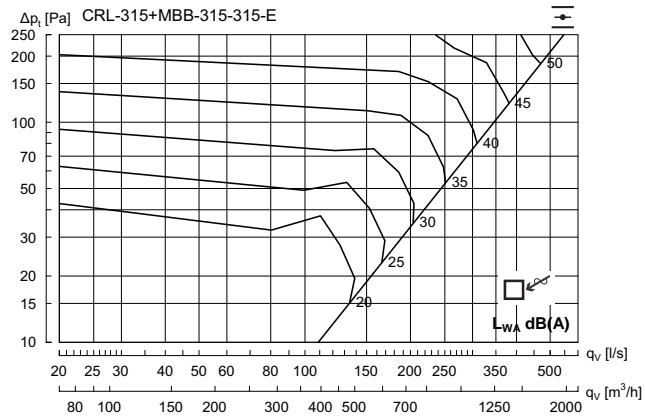
Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	13	5	1	-3	-5	-11	-14	-20

Plain diffuser

CRL

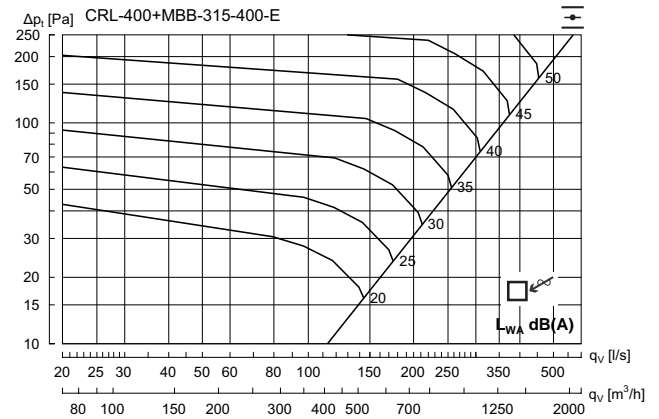
Technical data

CRL 315 + MBB-E - Extract air

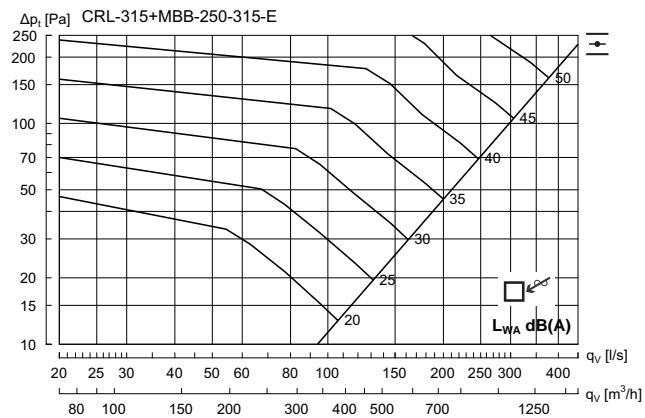


Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	13	5	2	-3	-6	-10	-15	-25

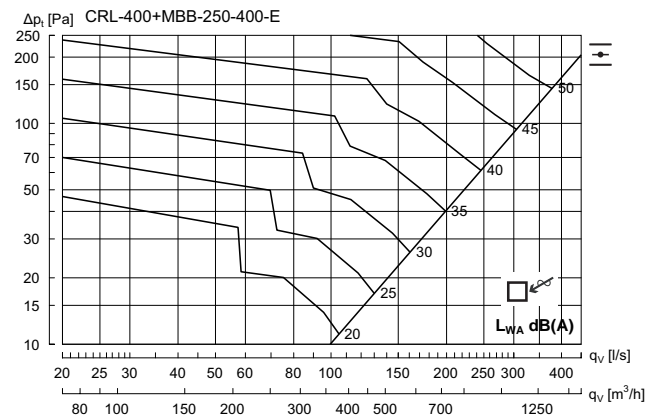
CRL 400 + MBB-E - Extract air



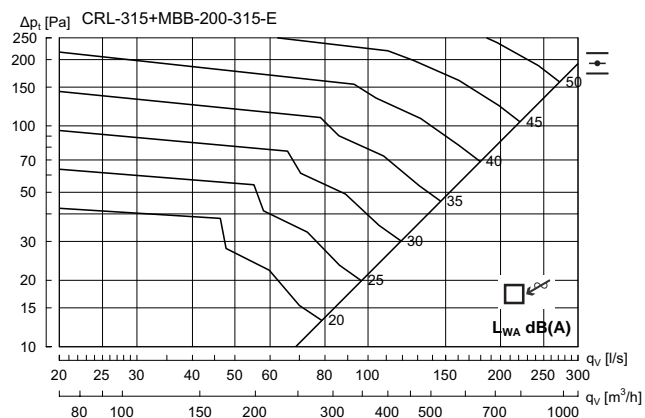
Hz	63	125	250	500	1K	2K	4K	8K
K_{ok}	11	5	2	-2	-7	-11	-15	-25



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



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



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