

# Multi-cone diffuser

# FKD



## Description

FKD is an adjustable circular multi-cone diffuser, which is typically used for supply air. The diffuser can be switched between horizontal and vertical supply air and is therefore ideal for the supply of both heated and cooled air. Installing an FKD diffuser up to size 400 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 has a rotating blade damper for supply air. Typically used in applications that don't require a high balancing pressure in the plenum box.

- Suitable for supply air
- Vertical or horizontal supply air pattern
- Plenum box with several damper options

## Maintenance

The multi-cone 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.

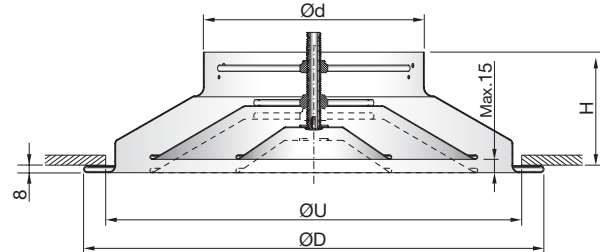
## Order code

<b>Product</b>	FKD - aaa
<b>Type</b>	FKD
<b>Connection dim.</b>	Ø160-630

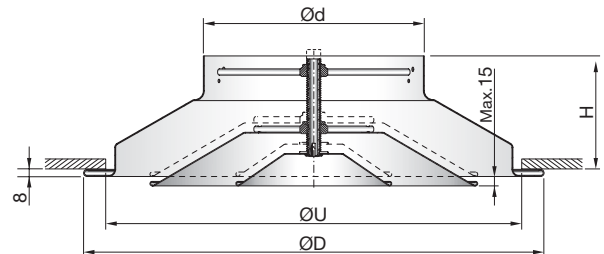
Example: FKD-200

## Dimensions

### Vertical



### Horizontal



FKD Ød mm	ØD mm	H mm	ØU* mm	Free area A		m kg
				Vertical m <sup>2</sup>	Horizontal m <sup>2</sup>	
160	335	97	288	0,0298	0,0304	0,7
200	423	110	370	0,0431	0,0456	0,9
250	517	122	461	0,0622	0,0684	1,2
315	640	138	576	0,091	0,1041	1,8
355	730	177	656	0,1108	0,1293	2,6
400	776	177	700	0,1349	0,1606	3,1
450	825	177	755	0,1637	0,199	3,4
500	917	177	825	0,1948	0,241	4,3
630	1045	177	963	0,285	0,3667	7,4

ØU\* = Cutting dimension

Number of cones:	size 160–355 :	2
	size 400–500 :	3
	size 630 :	4

## Materials and finish

Material:	Aluminium
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.

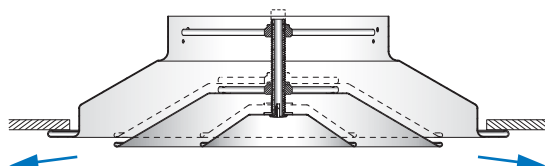
# Multi-cone diffuser

# FKD

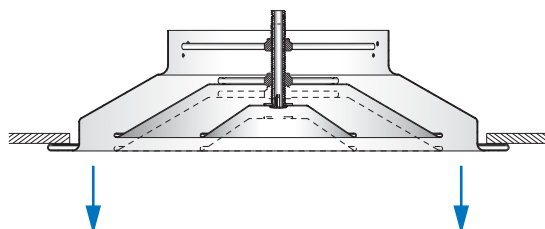
## Dispersal patterns

FKD is supplied for vertical supply air as standard. The dispersal pattern can be altered to horizontal supply air by setting the inner part of the diffuser to its lowest position.

### Horizontal

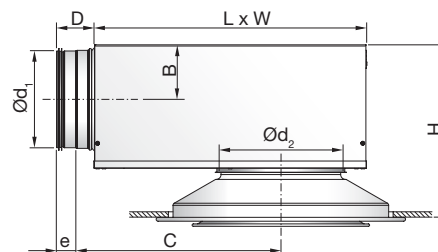


### Vertical



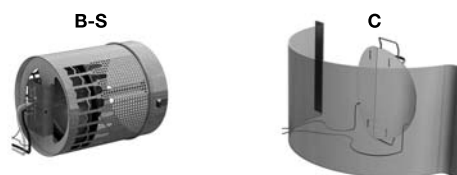
## Accessories

### FKD + MB Plenum box



Ød <sub>1</sub> mm	Ød <sub>2</sub> mm	B	C	D	e	H*	L	W
		mm						
100	160	62	245	78	40	221 - 243	310	260
125	160	75	291	78	40	246 - 268	376	310
125	200	75	291	78	40	257 - 281	376	310
160	160	92	352	78	40	280 - 302	459	380
160	200	92	352	78	40	291 - 315	459	380
160	250	92	352	78	40	305 - 327	459	380
200	200	112	425	78	40	332 - 356	565	460
200	250	112	425	78	40	346 - 368	565	460
200	315	112	425	78	40	363 - 384	565	460
250	250	137	514	118	60	396 - 418	698	540
250	315	137	514	118	60	413 - 434	698	540
250	400	137	514	118	60	440 - 473	698	540
315	315	170	675	118	60	478 - 499	858	540
315	400	170	675	118	60	505 - 538	858	540

## Damper options



## Order code

Product	MB	a	bbb	ccc	S
Type	MB				
Damper					
B = Linear cone damper					
C = Blade damper supply					
Duct connection Ød <sub>1</sub>					
Ø100-315					
Diffuser dimension Ød <sub>2</sub>					
Ø160-400					
Function (Only for B damper)					
S = Supply air					

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

Example 2: FKD-200+MBC-160-200

# Multi-cone diffuser

# FKD

## Technical data

Following FKD+plenum box data are valid for MBB-S.  
**For MBC data, go to [www.lindQST.com](http://www.lindQST.com) .**

### 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.

### Throw $l_{0,2}$

Throw  $l_{0,2}$  [m] can be seen in the diagram for isothermal air at a speed of 0.2 m/s.

### Frequency-related sound power level

The sound power level in the frequency band is defined as  $L_{wok} = L_{WA} + K_{ok}$ .  $K_{ok}$  values are specified in charts beneath the diagrams on the following pages.  $K_{ok}$  values for FKD without a box can be found in a separate supplement.

### Sound attenuation

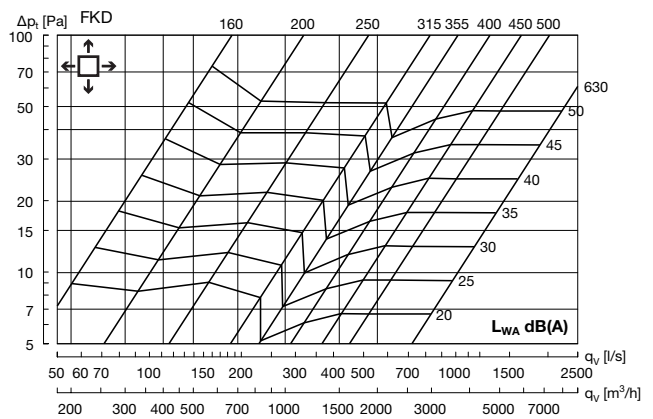
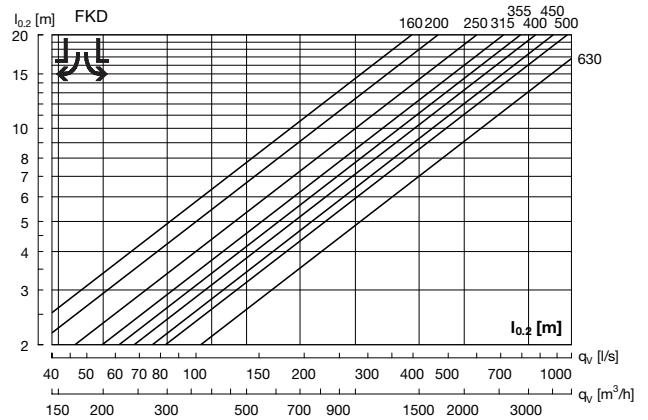
Sound attenuation of the diffuser  $\Delta L$  from duct to room, including end reflection, see table below.

FKD + MBB-S		Centre frequency Hz							
duct	FKD	63	125	250	500	1K	2K	4K	8K
$\varnothing d_1$	$\varnothing d_2$								
100	160	20	16	5	15	17	17	16	19
125	160	13	13	8	19	13	16	16	19
125	200	15	11	6	15	12	14	16	17
160	160	16	17	10	18	17	18	20	21
160	200	15	14	7	19	15	16	18	19
160	250	17	16	4	16	15	16	16	18
200	200	13	10	6	15	18	15	19	17
200	250	13	9	4	12	17	13	17	16
200	315	13	8	3	8	16	14	16	15
250	250	14	8	8	15	17	17	17	18
250	315	13	6	5	13	15	15	16	17
250	400	12	4	3	12	13	14	14	15
315	315	7	9	8	12	17	16	17	21
315	400	7	8	7	11	16	14	16	19

### Balancing

Balancing data is contained in a separate brochure.

## Horizontal



# Multi-cone diffuser

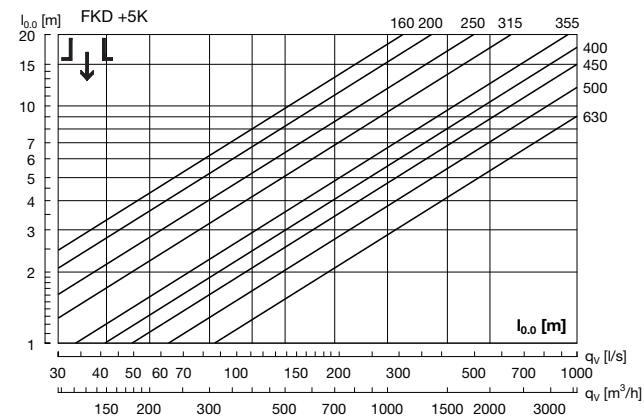
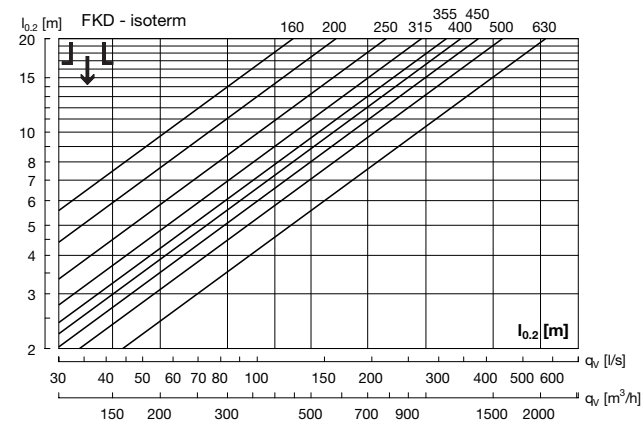
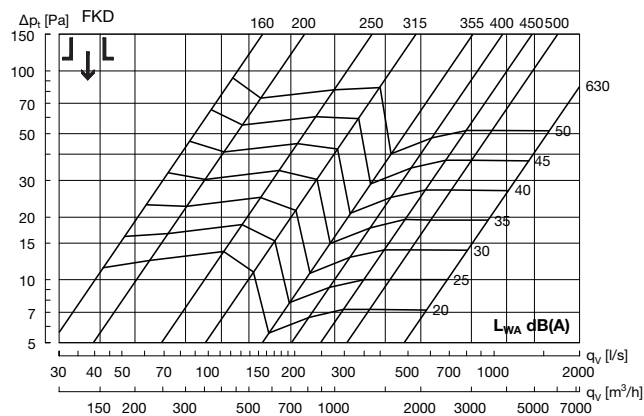
FKD

## Technical data

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

Throws  $l_{0,2}$  [m] can be seen in the diagrams for isothermal air at a speed of 0.2 m/s. Turning point  $l_{0,0}$  [m] can be seen in the diagrams for heated air, +5 K, +10 K respectively.

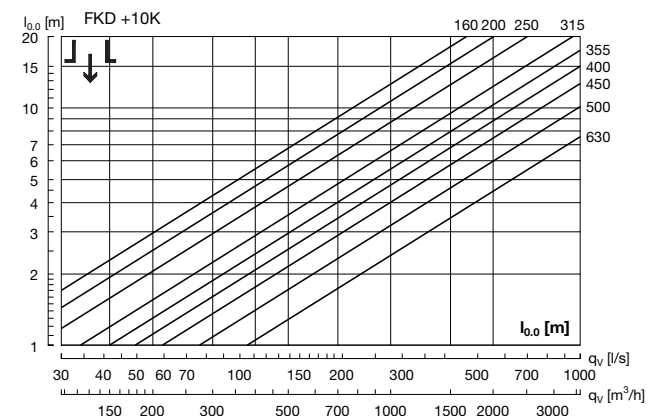
### Vertical



### Vertical supply air correction sound power level ( $L_{WA}$ ) and pressure loss ( $\Delta p_t$ )

On the following pages you can find diagrams for all sizes FKD+MBB-S horizontal supply air. When Vertical supply air values are wanted, use the correction factors in the table below.

FKD + MBB-S		Vertical supply air	
duct	FKD	Correction factor	
$\varnothing d_1$	$\varnothing d_2$	$L_{WA}$	$\Delta p_t$
100	160	3	x 1,2
125	160	1	x 1,2
125	200	1	x 1,1
160	160	5	x 1,5
160	200	3	x 1,3
160	250	0	x 1,1
200	200	1	x 1,3
200	250	5	x 1,2
200	315	0	x 1,1
250	250	1	x 1,3
250	315	2	x 1,3
250	400	1	x 1,1
315	315	4	x 1,4
315	400	3	x 1,2

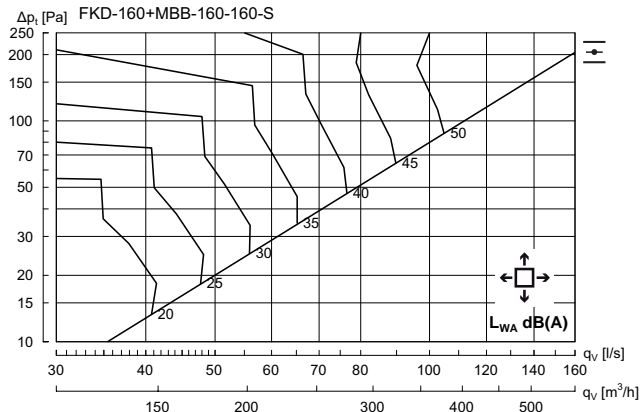


# Multi-cone diffuser

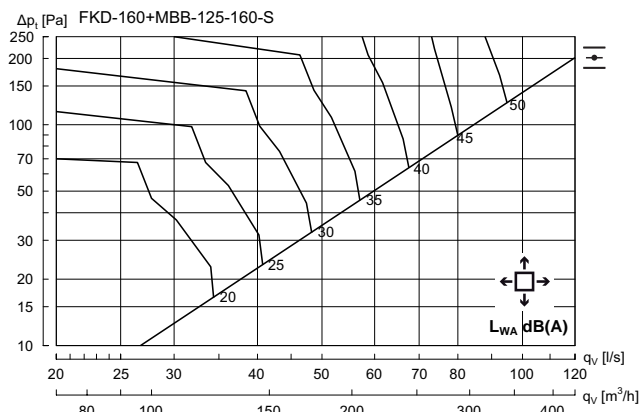
# FKD

## Technical data

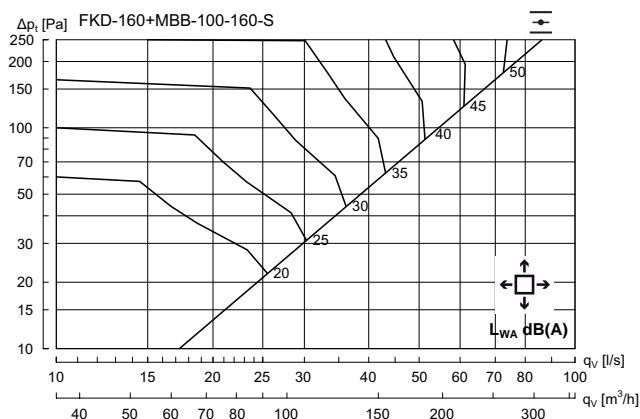
### FKD 160 + MBB-S Horizontal



Hz	63	125	250	500	1K	2K	4K	8K
$K_{ok}$	11	7	0	-6	-4	-9	-22	-31

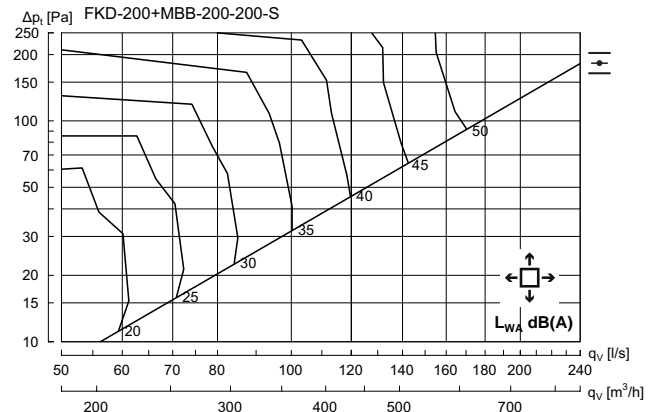


Hz	63	125	250	500	1K	2K	4K	8K
$K_{ok}$	10	5	2	-5	-5	-9	-18	-25

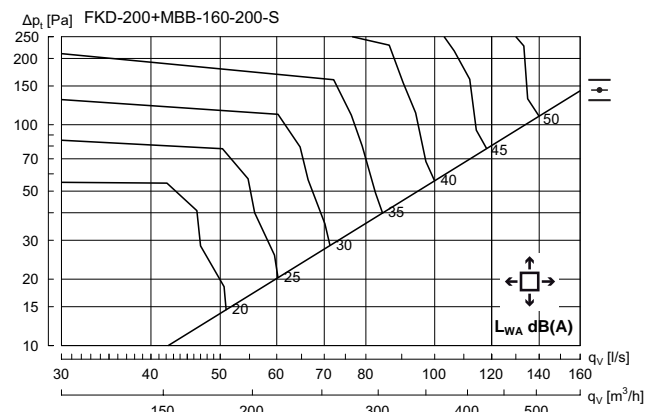


Hz	63	125	250	500	1K	2K	4K	8K
$K_{ok}$	9	4	2	-3	-5	-9	-16	-22

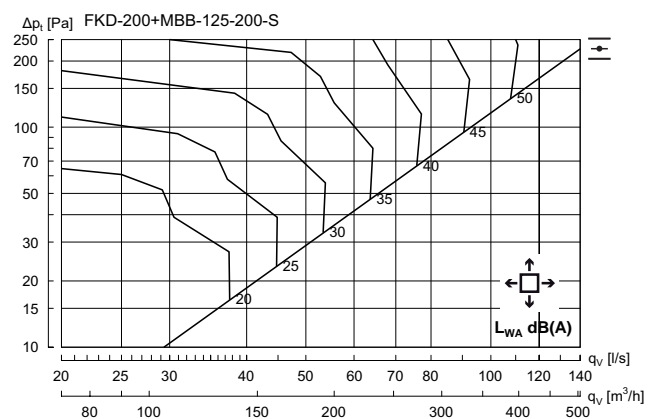
### FKD 200 + MBB-S Horizontal



Hz	63	125	250	500	1K	2K	4K	8K
$K_{ok}$	13	5	-2	-5	-3	-12	-22	-28



Hz	63	125	250	500	1K	2K	4K	8K
$K_{ok}$	11	5	1	-5	-4	-11	-20	-25



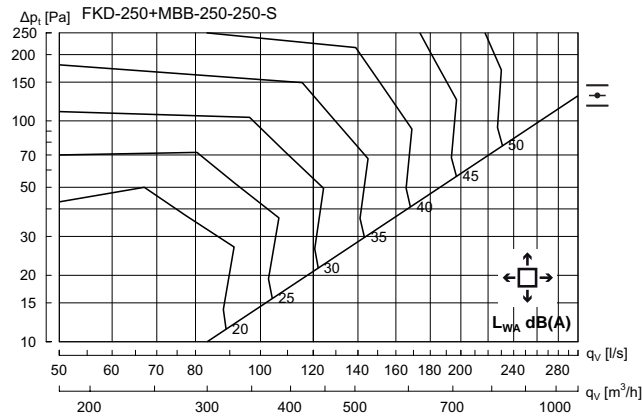
Hz	63	125	250	500	1K	2K	4K	8K
$K_{ok}$	11	4	1	-4	-4	-10	-16	-23

# Multi-cone diffuser

FKD

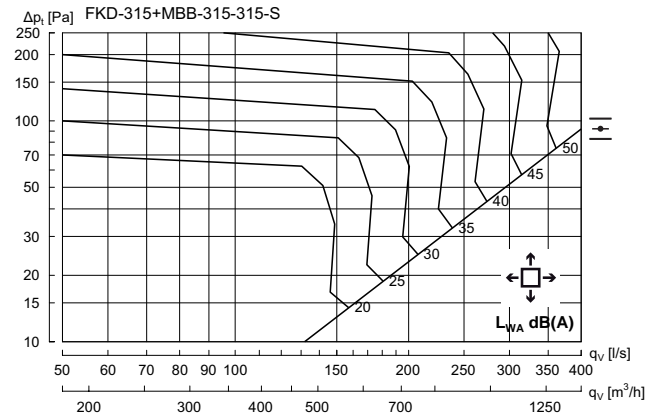
## Technical data

### FKD 250 + MBB-S Horizontal

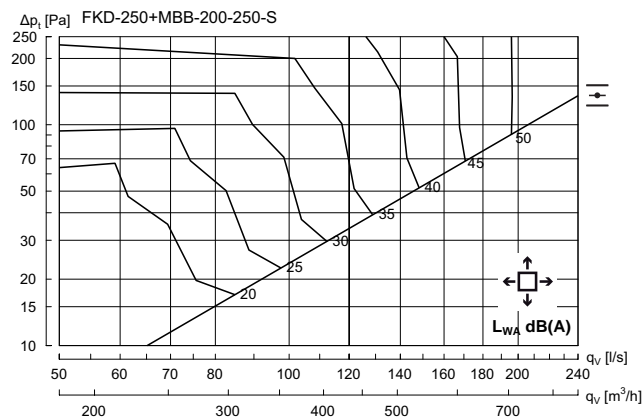


Hz	63	125	250	500	1K	2K	4K	8K
$K_{ok}$	12	5	-2	-4	-3	-13	-20	-26

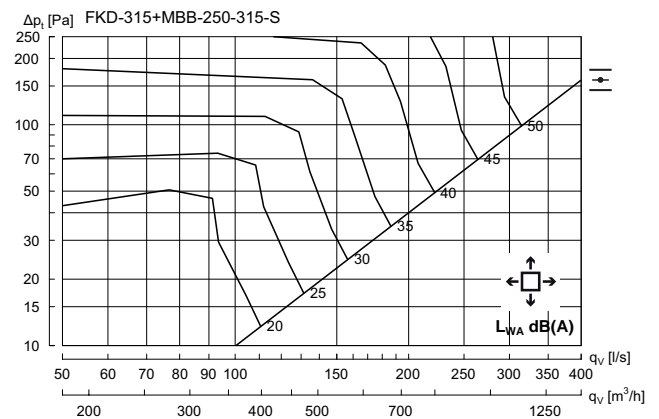
### FKD 315 + MBB-S Horizontal



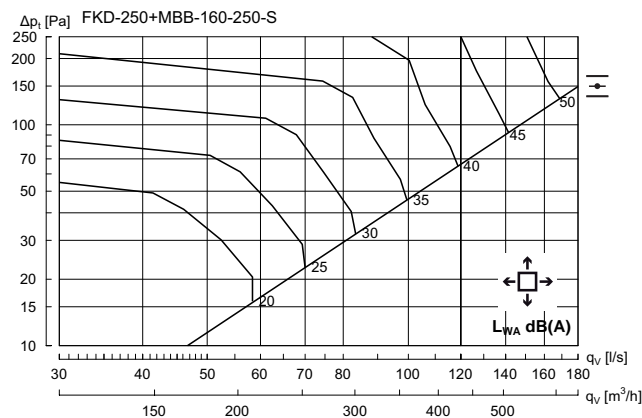
Hz	63	125	250	500	1K	2K	4K	8K
$K_{ok}$	14	3	0	-2	-4	-14	-20	-26



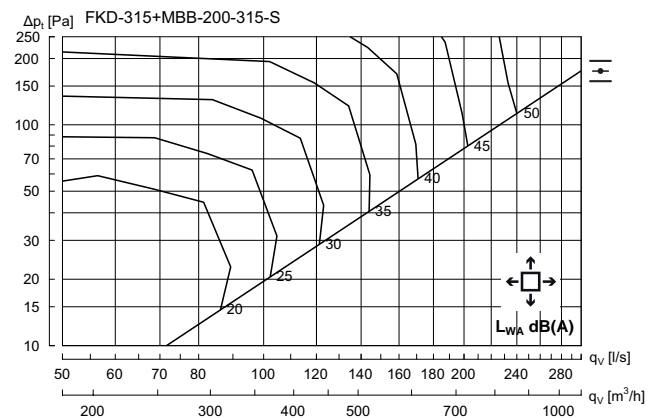
Hz	63	125	250	500	1K	2K	4K	8K
$K_{ok}$	11	5	-2	-3	-3	-12	-19	-24



Hz	63	125	250	500	1K	2K	4K	8K
$K_{ok}$	12	5	-1	-2	-4	-12	-19	-21



Hz	63	125	250	500	1K	2K	4K	8K
$K_{ok}$	12	4	0	-3	-4	-12	-18	-24



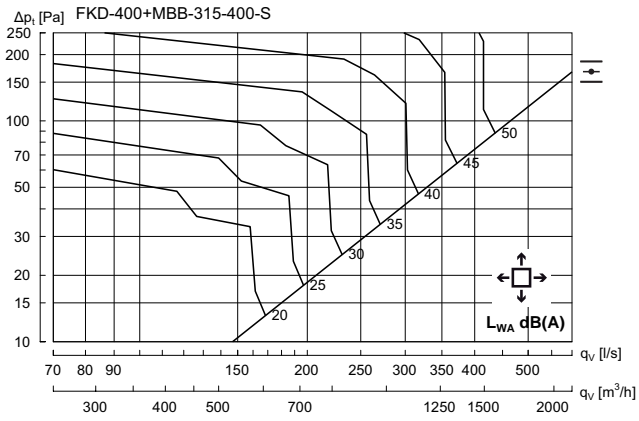
Hz	63	125	250	500	1K	2K	4K	8K
$K_{ok}$	9	5	-1	-2	-5	-11	-18	-24

# Multi-cone diffuser

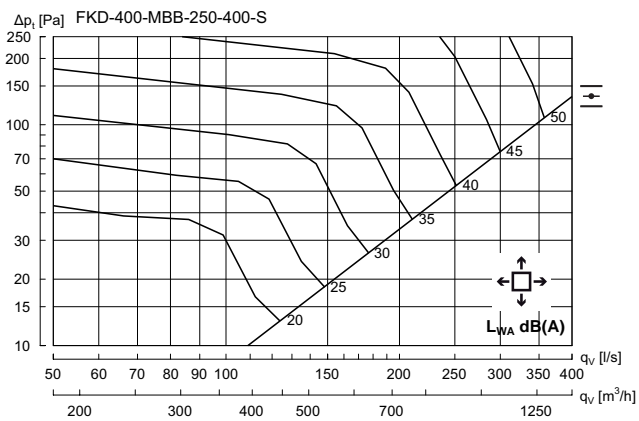
# FKD

## Technical data

### FKD 400 + MBB-S Horizontal



Hz	63	125	250	500	1K	2K	4K	8K
$K_{sk}$	11	4	1	-1	-6	-12	-17	-24



Hz	63	125	250	500	1K	2K	4K	8K
$K_{sk}$	9	4	1	-1	-6	-12	-17	-25