

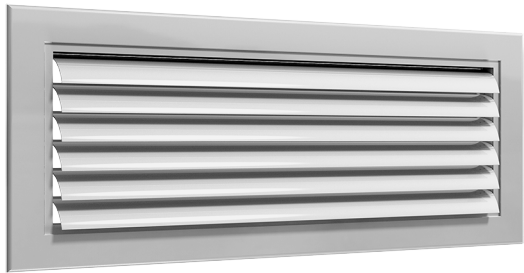
AC

Grilles Nordic version



Grille Nordic version

AC



Description

AC is a supply grille made from aluminum with curved adjustable blades, oriented 1-way or 2-way horizontal or vertical both for wall and ceiling installation. The grille is available with several mounting options and can be delivered with mounting frame, opposed blade damper and plenum box accessories.

Grilles are available in 2 versions:

- Global version: wall opening is L + 5 x H + 5
- Nordic version: wall opening is L x H

Order code - Nordic version

Product	AC	1	a	b	c	ddd x eee	ffff
Type							
AC							
Frame							
1 - 25 mm frame							
Grid							
1 -Horizontal curved blades-1 - way							
2 -Vertical curved blades-1 - way							
3 -Horizontal curved blades-2 - ways							
4 -Vertical curved blades-2 - ways							
Installation							
- Not prepared							
CN Clips							
CMN Clips + mounting frame							
V Visible screw holes							
VMN Visible screw holes + mounting frame							
H Hidden screw installation							
HMN Hidden screws + mounting frame							
Accessories							
- No accessories							
DN Opposed blade damper							
Size							
L: 200 - 1500 mm							
H: 100 - 1200 mm						Only AC-11 / AC-13	
H: 150 - 1200 mm						Only AC-12 / AC-14	
Grilles standard finish:							
- Anodized aluminium							
9010 RAL 9010, gloss 30							
9003 RAL 9003, gloss 30							
xxxx On request, other RAL colour							

Example 1: AC-11-CMN-DN-400-200-9003

Example 2: AC-14-600-300

Min. - max. dimensions

AC-11 / AC-13

H \ L	200	↔	1200	↔	1500
100					
↕					
500					
↕					
1200					

AC-12 / AC-14

H \ L	200	↔	1200	↔	1500
150					
↕					
500					
↕					
1200					

Standard grilles are available in steps of 50 mm within the above min. and max. sizes.

Customized sizes available on request.

LindQST

Use the advanced Lindab web tool LindQST to calculate the full range of grilles and to find the suitable grille type and dimension for all applications.

Product selection, room dimensioning and documentation search are easy available directly on web and mobile devices.

Find this and much more on www.lindQST.com.

Maintenance

The grille should be removed to gain access to the plenum box or duct. The external parts should be wiped with a damp cloth.

Accessories

Plenum box: [VBA, PBAN](#)
 Mounting frame: [MFAN](#)
 Opposed blade damper: [DGAN](#)

Materials and finish

Grille frame and blades: Anodized aluminium
 Mounting frame: Galvanized steel
 Opposed blade damper: Galvanized steel
 Grilles standard finish:

- Aluminium anodized
- RAL 9010, gloss 30
- RAL 9003, gloss 30

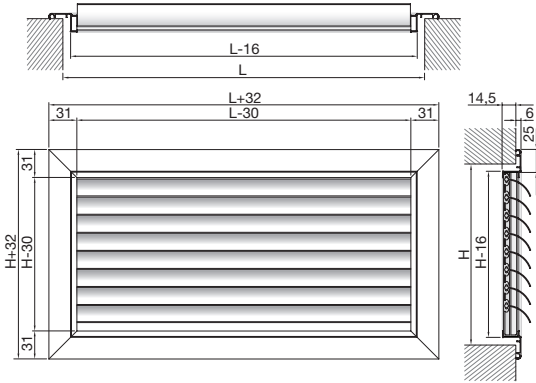
The grille is available in other colours. Please contact Lindab's sales department for further information.

Grille Nordic version

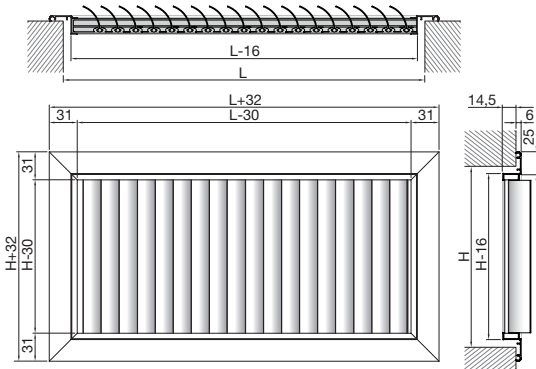
AC

Frame and grid

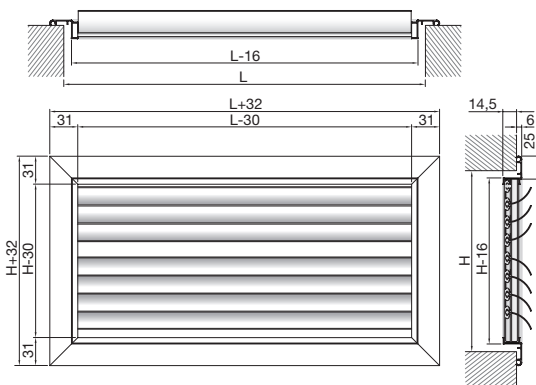
AC-11 25 mm frame with horizontal curved blades - 1 way.



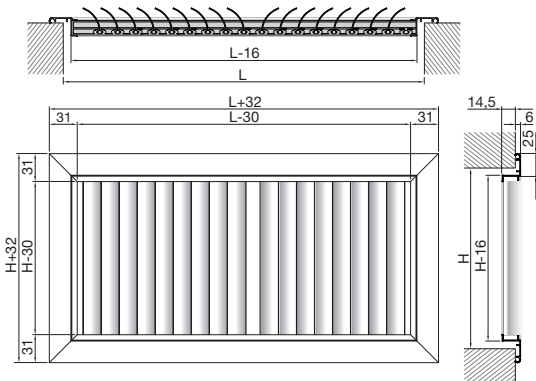
AC-12 25 mm frame with Vertical curved blades -1 way.



AC-13 25 mm frame with horizontal curved blades-2 ways.

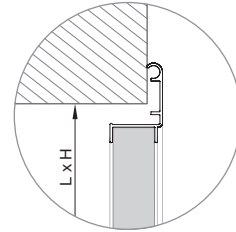


AC-14 25 mm frame with vertical curved blades - 2 ways.



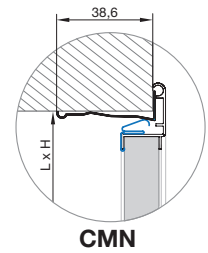
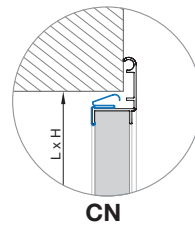
Installation

- Not prepared



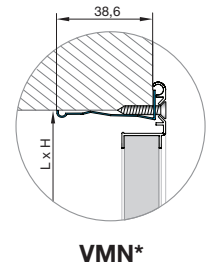
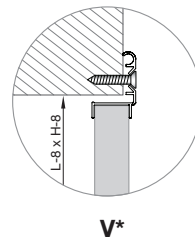
CN - Clips

CMN - Clips + mounting frame



V* - Visible screw holes

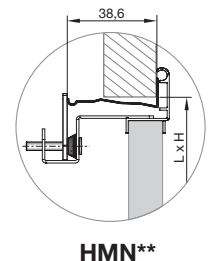
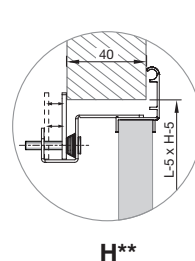
VMN* - Visible screw holes + mounting frame



* Screws are not included.

H** - Hidden screws

HMN** - Hidden screws + mounting frame



** Limitation max. length: 1200 mm, max. height: 1000 mm.

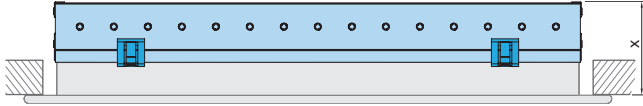
Grille Nordic version

AC

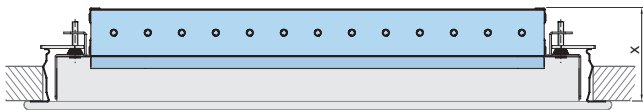
Accessories

- No damper

DN - Opposed blade damper DGAN



AC with installation type CN, CMN, V and VMN.
A full length click-on DGAN-damper is available.



AC with installation type H or HMN has a shortend DGAN damper option due to the hidden screw installation type.
The damper is mounted from factory and is not detachable.

x = 51 mm

Available DGAN sizes

H \ L	100 ↔ 600 ↔ 800 ↔ 1000 ↔ 1200 ↔ 1600 ↔ 2000
75	Single piece (up to 1000) / Multiple pieces (from 1000)
400	1000 x 400, 2000 x 400
500	800 x 500, 1600 x 500
600	600 x 600, 1200 x 600
800	1000 x 800
1000	800 x 1000
1200	600 x 1200
	Not available sizes

DGAN in combination with hidden screw installation.

H \ L	600 ↔ 1000 ↔ 1200
300	Compatible with DGAN
600	Not compatible with DGAN
1000	

- plenum box
- mounting frame

Details see website on www.lindQST.com.

Grille Nordic version

AC

Free area

H / L	AC-11 / AC-12 Curved blade grille 1 - way												
	A _k (m ²)												
	200	250	300	350	400	450	500	550	600	700	800	900	1000
100	0,006	0,008	0,010	0,011	0,013	0,015	0,016	0,018	0,020	0,023	0,027	0,030	0,033
150	0,010	0,013	0,015	0,018	0,021	0,023	0,026	0,029	0,032	0,037	0,042	0,048	0,053
200	0,014	0,017	0,021	0,025	0,028	0,032	0,036	0,040	0,043	0,051	0,058	0,066	0,073
250	0,017	0,022	0,027	0,031	0,036	0,041	0,046	0,050	0,055	0,064	0,074	0,083	0,093
300	0,021	0,027	0,033	0,038	0,044	0,050	0,055	0,061	0,067	0,078	0,090	0,101	0,112
350	0,025	0,032	0,038	0,045	0,052	0,058	0,065	0,072	0,079	0,092	0,105	0,119	0,132
400	0,029	0,036	0,044	0,052	0,059	0,067	0,075	0,083	0,090	0,106	0,121	0,137	0,152
450	0,032	0,041	0,050	0,058	0,067	0,076	0,085	0,093	0,102	0,119	0,137	0,154	0,172
500	0,036	0,046	0,056	0,065	0,075	0,085	0,094	0,104	0,114	0,133	0,153	0,172	0,191
550	0,040	0,051	0,061	0,072	0,083	0,093	0,104	0,115	0,126	0,147	0,168	0,190	0,211
600	0,044	0,055	0,067	0,079	0,090	0,102	0,114	0,126	0,137	0,161	0,184	0,208	0,231
700	0,051	0,065	0,079	0,092	0,106	0,120	0,133	0,147	0,161	0,188	0,216	0,243	0,270
800	0,059	0,074	0,090	0,106	0,121	0,137	0,153	0,169	0,184	0,216	0,247	0,279	0,310
900	0,066	0,084	0,102	0,119	0,137	0,155	0,172	0,190	0,208	0,243	0,279	0,314	0,349
1000	0,074	0,093	0,113	0,133	0,152	0,172	0,192	0,212	0,231	0,271	0,310	0,350	0,389

H / L	AC-13 / AC-14 Curved blade grille 2 - ways												
	A _k (m ²)												
	200	250	300	350	400	450	500	550	600	700	800	900	1000
100	0,005	0,006	0,008	0,010	0,012	0,013	0,015	0,017	0,018	0,022	0,025	0,029	0,032
150	0,007	0,010	0,013	0,016	0,018	0,021	0,024	0,026	0,029	0,035	0,040	0,045	0,051
200	0,010	0,014	0,018	0,021	0,025	0,029	0,032	0,036	0,040	0,047	0,055	0,062	0,070
250	0,013	0,018	0,022	0,027	0,032	0,036	0,041	0,046	0,051	0,060	0,069	0,079	0,088
300	0,016	0,021	0,027	0,033	0,039	0,044	0,050	0,056	0,061	0,073	0,084	0,096	0,107
350	0,018	0,025	0,032	0,039	0,045	0,052	0,059	0,065	0,072	0,086	0,099	0,112	0,126
400	0,021	0,029	0,037	0,044	0,052	0,060	0,067	0,075	0,083	0,098	0,114	0,129	0,145
450	0,024	0,033	0,041	0,050	0,059	0,067	0,076	0,085	0,094	0,111	0,128	0,146	0,163
500	0,027	0,036	0,046	0,056	0,066	0,075	0,085	0,095	0,104	0,124	0,143	0,163	0,182
550	0,029	0,040	0,051	0,062	0,072	0,083	0,094	0,104	0,115	0,137	0,158	0,179	0,201
600	0,032	0,044	0,056	0,067	0,079	0,091	0,102	0,114	0,126	0,149	0,173	0,196	0,220
700	0,038	0,051	0,065	0,079	0,093	0,106	0,120	0,134	0,147	0,175	0,202	0,230	0,257
800	0,043	0,059	0,075	0,090	0,106	0,122	0,137	0,153	0,169	0,200	0,232	0,263	0,295
900	0,049	0,066	0,084	0,102	0,120	0,137	0,155	0,173	0,190	0,226	0,261	0,297	0,332
1000	0,054	0,074	0,094	0,113	0,133	0,153	0,172	0,192	0,212	0,251	0,291	0,330	0,370

Grille Nordic version

AC

Quick selection, Supply air, AC -11 / AC-12

Grille size [mm]			Air flow rate																			
			m³/h	50	80	120	200	250	300	350	400	500	600	700	800	900	1000	1250	1500	1800	2000	
A _k [m²]		I/s	(14)	(22)	(33)	(56)	(69)	(83)	(97)	(111)	(139)	(167)	(194)	(222)	(250)	(278)	(347)	(417)	(500)	(556)		
H=100	200x100 (0,006)	L _{WA} [dB(A)]	26	38	48																	
		V _k [m/s]	2,3	3,6	5,4																	
		Δp _t [Pa]	4	9	20																	
		L _{0,2} [m]	1,6	2,5	3,7																	
	300x100 (0,01)	L _{WA} [dB(A)]	<20	26	36	50																
		V _k [m/s]	1,5	2,3	3,5	5,9																
Δp _t [Pa]		1	4	8	24																	
L _{0,2} [m]		1,3	2	3	5																	
400x100 (0,013)	L _{WA} [dB(A)]		<20	28	42	47																
	V _k [m/s]		1,7	2,6	4,3	5,3																
	Δp _t [Pa]		2	4	13	20																
	L _{0,2} [m]		1,7	2,6	4,3	5,2																
500x100 (0,016)	L _{WA} [dB(A)]		<20	22	36	41	46	50														
	V _k [m/s]		1,3	2	3,4	4,2	5,1	5,9														
	Δp _t [Pa]		1	3	8	12	18	24														
	L _{0,2} [m]		1,6	2,3	3,8	4,7	5,6	6,5														
600x100 (0,02)	L _{WA} [dB(A)]			<20	31	36	41	45	48													
	V _k [m/s]			1,7	2,8	3,5	4,2	4,9	5,6													
	Δp _t [Pa]			2	6	8	12	17	22													
	L _{0,2} [m]			2,1	3,5	4,2	5,1	5,9	6,7													
800x100 (0,027)	L _{WA} [dB(A)]				23	28	33	37	40	46												
	V _k [m/s]				2,1	2,6	3,1	3,6	4,2	5,2												
	Δp _t [Pa]				3	5	7	9	12	19												
	L _{0,2} [m]				3	3,7	4,4	5,1	5,8	7,2												
H=150	300x150 (0,015)	L _{WA} [dB(A)]		<20	24	38	43	48														
		V _k [m/s]		1,4	2,2	3,7	4,5	5,4														
		Δp _t [Pa]		1	3	9	14	20														
		L _{0,2} [m]		1,6	2,4	3,9	4,8	5,8														
	400x150 (0,021)	L _{WA} [dB(A)]			<20	29	35	40	44	47												
		V _k [m/s]			1,6	2,7	3,3	4	4,7	5,4												
Δp _t [Pa]				2	5	8	11	15	20													
L _{0,2} [m]				2	3,4	4,2	5	5,8	6,6													
500x150 (0,026)	L _{WA} [dB(A)]				23	29	33	37	41	47												
	V _k [m/s]				2,1	2,6	3,2	3,7	4,3	5,3												
	Δp _t [Pa]				3	5	7	9	12	19												
	L _{0,2} [m]				3	3,7	4,4	5,1	5,8	7,3												
600x150 (0,032)	L _{WA} [dB(A)]				<20	23	28	32	36	42	46	50										
	V _k [m/s]				1,8	2,2	2,6	3,1	3,5	4,4	5,3	6,2										
	Δp _t [Pa]				2	3	5	6	9	13	19	26										
	L _{0,2} [m]				2,7	3,4	4	4,7	5,3	6,6	7,9	9,1										
800x150 (0,042)	L _{WA} [dB(A)]				<20	<20	20	24	28	34	38	42	46	49								
	V _k [m/s]				1,3	1,6	2	2,3	2,6	3,3	3,9	4,6	5,2	5,9								
	Δp _t [Pa]				1	2	3	4	5	7	11	14	19	24								
	L _{0,2} [m]				2,4	2,9	3,4	4	4,5	5,6	6,7	7,8	8,9	9,9								
H=200	400x200 (0,028)	L _{WA} [dB(A)]				21	26	31	35	39	44	49										
		V _k [m/s]				2	2,4	2,9	3,4	3,9	4,9	5,9										
		Δp _t [Pa]				3	4	6	8	10	16	24										
		L _{0,2} [m]				2,9	3,5	4,2	4,9	5,6	6,9	8,3										
	500x200 (0,036)	L _{WA} [dB(A)]				<20	20	25	29	32	38	43	47	50								
		V _k [m/s]				1,6	1,9	2,3	2,7	3,1	3,9	4,7	5,4	6,2								
Δp _t [Pa]					2	3	4	5	7	10	15	20	26									
L _{0,2} [m]					2,6	3,1	3,8	4,4	5	6,2	7,4	8,5	9,7									
600x200 (0,043)	L _{WA} [dB(A)]				<20	<20	20	24	27	33	38	42	45	48								
	V _k [m/s]				1,3	1,6	1,9	2,2	2,6	3,2	3,9	4,5	5,1	5,8								
	Δp _t [Pa]				1	2	3	3	5	7	10	14	18	23								
	L _{0,2} [m]				2,3	2,8	3,4	4	4,5	5,6	6,7	7,7	8,8	9,8								
800x200 (0,058)	L _{WA} [dB(A)]						<20	<20	25	30	34	37	40	43	49							
	V _k [m/s]						1,4	1,7	1,9	2,4	2,9	3,3	3,8	4,3	4,8	6						
	Δp _t [Pa]						1	2	3	4	6	8	10	13	16	24						
	L _{0,2} [m]						2,9	3,4	3,8	4,8	5,7	6,5	7,5	8,4	9,3	11,5						
H=300	500x300 (0,055)	L _{WA} [dB(A)]						<20	<20	21	27	31	35	39	42	44	50					
		V _k [m/s]						1,5	1,8	2	2,5	3	3,5	4	4,5	5	6,3					
		Δp _t [Pa]						2	2	3	4	6	8	11	14	17	27					
		L _{0,2} [m]						3	3,5	3,9	4,9	5,8	6,7	7,7	8,6	9,5	11,8					
	600x300 (0,067)	L _{WA} [dB(A)]							<20	<20	21	26	30	34	37	39	45	50				
		V _k [m/s]							1,5	1,7	2,1	2,5	2,9	3,3	3,7	4,2	5,2	6,2				
Δp _t [Pa]								1	2	3	4	6	8	10	12	19	27					
L _{0,2} [m]								3,1	3,5	4,4	5,2	6,1	6,9	7,7	8,6	10,6	12,6					
800x300 (0,09)	L _{WA} [dB(A)]									<20	<20	22	26	29	32	37	42	47	49			
	V _k [m/s]									1,6	1,9	2,2	2,5	2,8	3,1	3,9	4,7	5,6	6,2			
	Δp _t [Pa]									2	2	3	4	5	7	10	15	21	26			
	L _{0,2} [m]									3,7	4,4	5,1	5,8	6,5	7,2	8,9	10,6	12,6	14			

10 ≤ L_{WA} < 30 30 ≤ L_{WA} < 40 40 ≤ L_{WA} < 50

Data valid for:

- Supply air
- Blade setting 0°
- Isotherm conditions
- Throw without ceiling effect (distance >800 mm. to ceiling)

Terminology:

- A_k = effective free area
- V_k = effective face velocity
- Δp_t = total pressure loss
- L_{WA} = sound power level
- l_{0,2} = throw to terminal velocity at 0.2 m/s

Grille Nordic version

AC

Technical data

Capacity

Air flow rate q_v [l/s] and [m³/h], total pressure loss Δp_t [Pa], throw $l_{0,2}$ [m] and sound power level L_{WA} [dB(A)] can be seen in the diagrams and apply for grilles without an opposed blade damper.

Air Jet Dispersal

Throw l_x [m] at an average speed of 0.2, 0.25 and 0.3 m/s, 0° blade setting without ceiling effect (distance from grille to ceiling over 800 mm) can be seen in the diagrams. Correction for dispersal - see table below.

Sound power level L_{WA}

Sound power level L_{WA} [dB(A)] at 0° blade setting can be seen in the diagrams. The sound power levels apply for grilles without a opposed blade damper. See the table below for correction of sound power level on blade settings [dB].

Frequency-related sound power level

The sound power level in the frequency band is defined as $L_{Wf} = L_{WA} + K_{ok}$.

K_{ok} values are given in the table below.

	Centre frequency Hz							
	63	125	250	500	1K	2K	4K	8K
Supply air	-2	-1	-1	-2	-7	-11	-16	-18
Extract	-1	-2	-1	-4	-3	-6	-12	-20

Opposed blade damper DGAN

Correction of total pressure loss Δp_t [Pa] and sound power level L_{WA} [dB(A)] using a damper. See table below.

Damper position	Open	25% Closed	50% Closed
	Total pressure loss Δp_t	x 1.15	x 1.3
Sound power level L_{WA}	+ 2	+ 6	+ 14

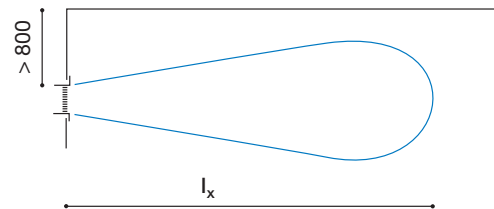
Extract air

Total pressure loss Δp_t	x 0.74
Sound power level L_{WA}	- 2

Throw and air jet dispersal

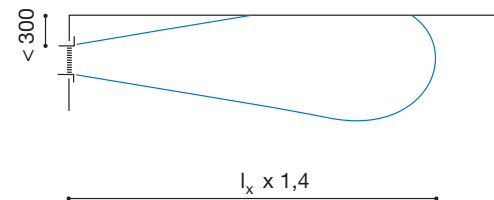
Throw

All given throw data applies for installation more than 800 mm from the ceiling.



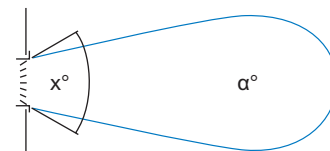
For grilles installed less than 300 mm from the ceiling, the air throw is extended by 40% so that:

$$l_{x \text{ result}} = 1.4 \times l_{x \text{ diagram value}}$$



Air jet dispersal

Adjustable blade settings for various jet dispersals, correction values can be seen in the table.



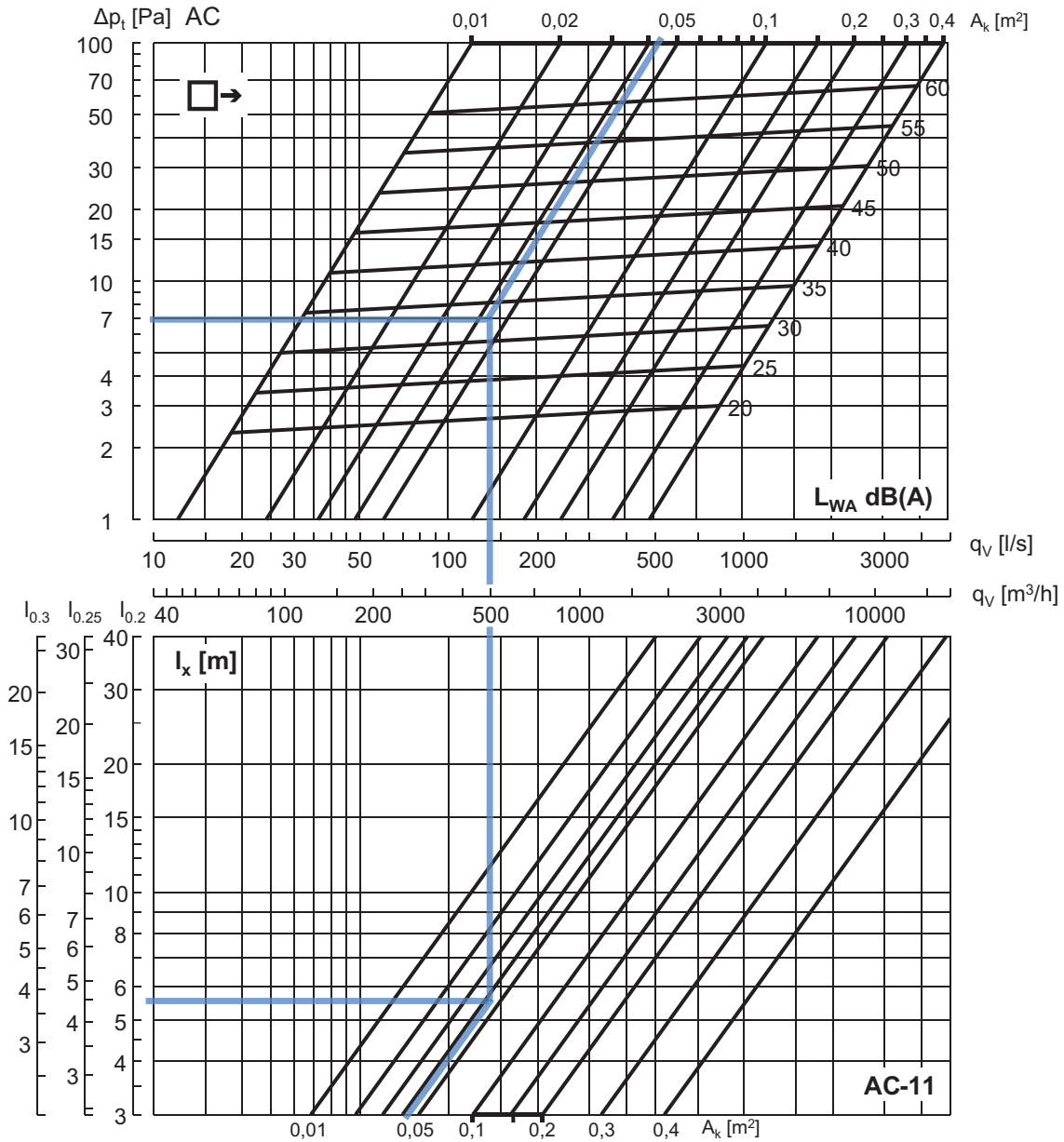
$$X = 45^\circ = \alpha = 35^\circ$$

$$X = 90^\circ = \alpha = 60^\circ$$

Grille Nordic version

AC

Technical data



Example:

Grille size (LxH): 600x200 mm
 Free area A_k : 0.043 m²
 Air flow rate q_v : 500 m³/h (139 l/s)
 Result:
 Sound power level L_{WA} : ~33 [dB(A)]
 Total pressure loss Δp_t : ~7 [Pa]
 Throw $l_{0.2}$: ~5.6 [m]

Data valid for:

- Supply air
- Blade setting 0°
- Isotherm conditions
- Throw without ceiling effect (distance >800 mm. to ceiling)

For grilles with free area > 0.4 m², we refer to use Lindabs online calculation tool on www.lindqst.com.



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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