

Grille

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.

Order code

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									
C Clips									
CM Clips + mounting frame									
V Visible screw holes									
VM Visible screw holes + mounting frame									
H Hidden screw installation									
HM Hidden screws + mounting frame									
Accessories									
- No accessories									
D 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-CM-D-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 easily 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:	PBA
Mounting frame:	MFA
Volume regulator:	DGA

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

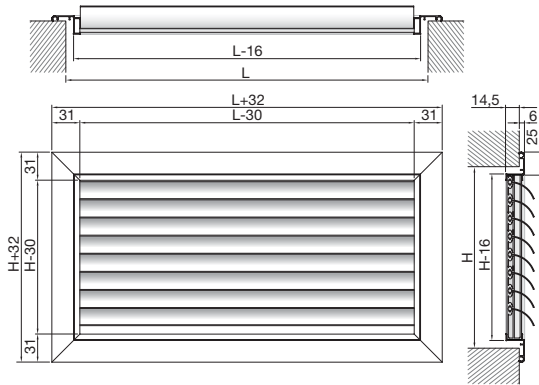
The grille is available in other colours. Please contact Lindab's sales department for further information.

Grille

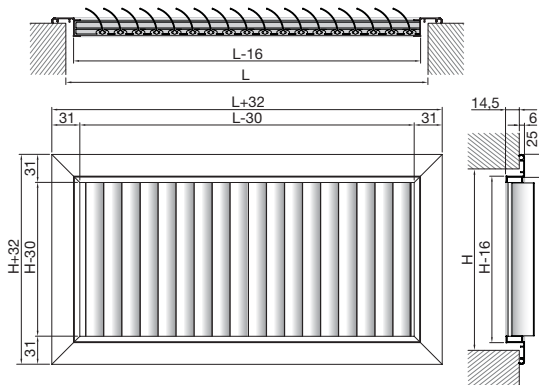
AC

Frame and grid

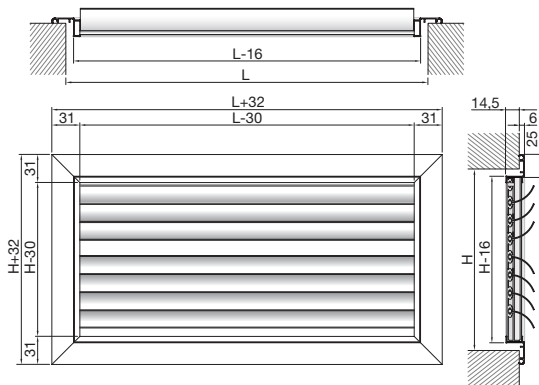
AC-11 25 mm frame with horizontal curved blades - 1 way



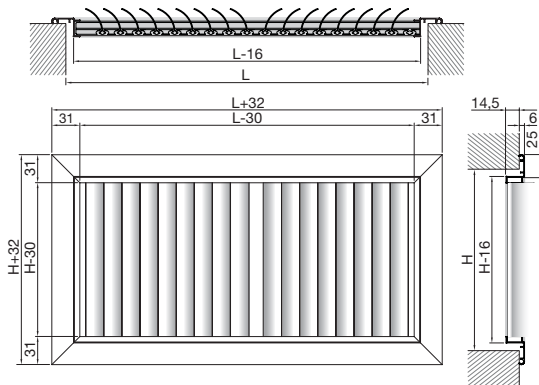
AC-12 25 mm frame with Vertical curved blades - 1 way



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

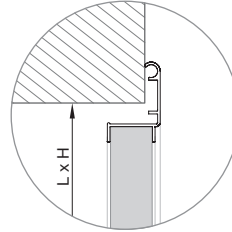


AC-14 25 mm frame with vertical curved blades - 2 ways



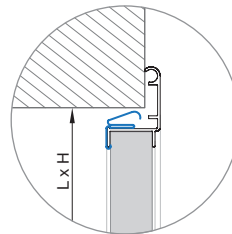
Installation

- Not prepared

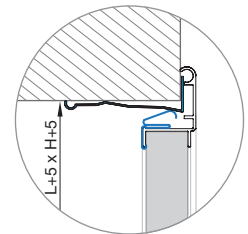


C - Clips

CM - Clips + mounting frame



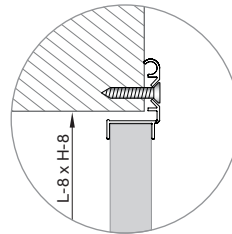
C



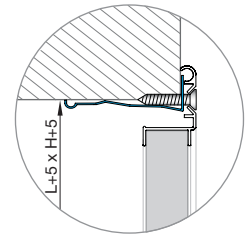
CM

V* - Visible screw holes

VM* - Visible screw holes + mounting frame



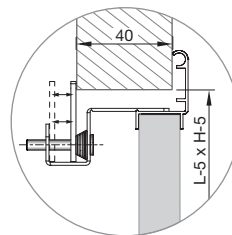
V



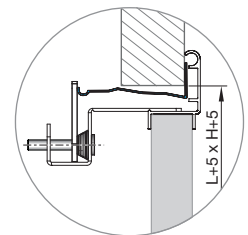
VM

* Screws are not included.

H - Hidden screws



H



HM

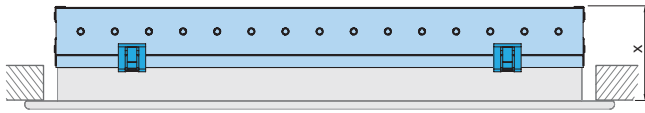
Grille

AC

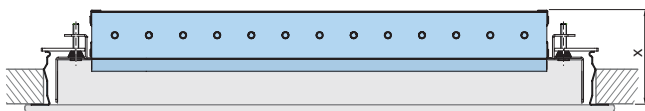
Accessories

- No damper

D - Opposed blade damper DGA



AC with installation type C, CM, V and VM.
A full length click-on DGA-damper is available.



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

x = 51 mm

Available DGA sizes

H \ L	100 ↔	600 ↔	800 ↔	1000 ↔	1200 ↔	1600 ↔	2000
75	Single piece			Multiple pieces			
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

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

AC

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

Grille size [mm]		Air flow rate																				
		A _k [m ²]	m ³ /h l/s	50 (14)	80 (22)	120 (33)	200 (56)	250 (69)	300 (83)	350 (97)	400 (111)	500 (139)	600 (167)	700 (194)	800 (222)	900 (250)	1000 (278)	1250 (347)	1500 (417)	1800 (500)	2000 (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																
400x100 (0,013)	L _{WA} [dB(A)]	<20	28	42	47																	
	V _k [m/s]		1,7	2,6	4,3	5,3																
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															
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													
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												
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												
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												
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										
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								
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								
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								
800x200 (0,058)	L _{WA} [dB(A)]						<20	<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						
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				
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			

10 ≤ LWA < 30 30 ≤ LWA < 40 40 ≤ LWA < 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

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 DGS

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%		50%	
		Closed	Closed	Closed	Closed
Total pressure loss Δp_t	x 1.15	x 1.3	x 4		
Sound power level L_{WA}	+ 2	+ 6	+ 14		

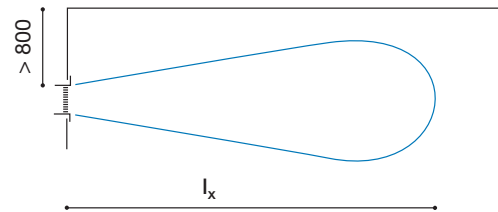
Extract air

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

Throw and air jet dispersal

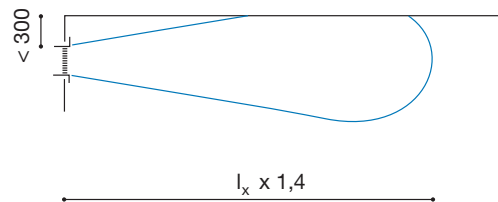
Throw

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



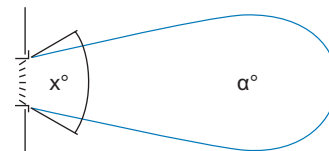
For grilles installed less than 300 mm from the ceiling, the air throw is extended by 40% so that:

$$l_{x \text{ result}} = 1,4 \times l_{x \text{ diagram value}}$$



Air jet dispersal

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



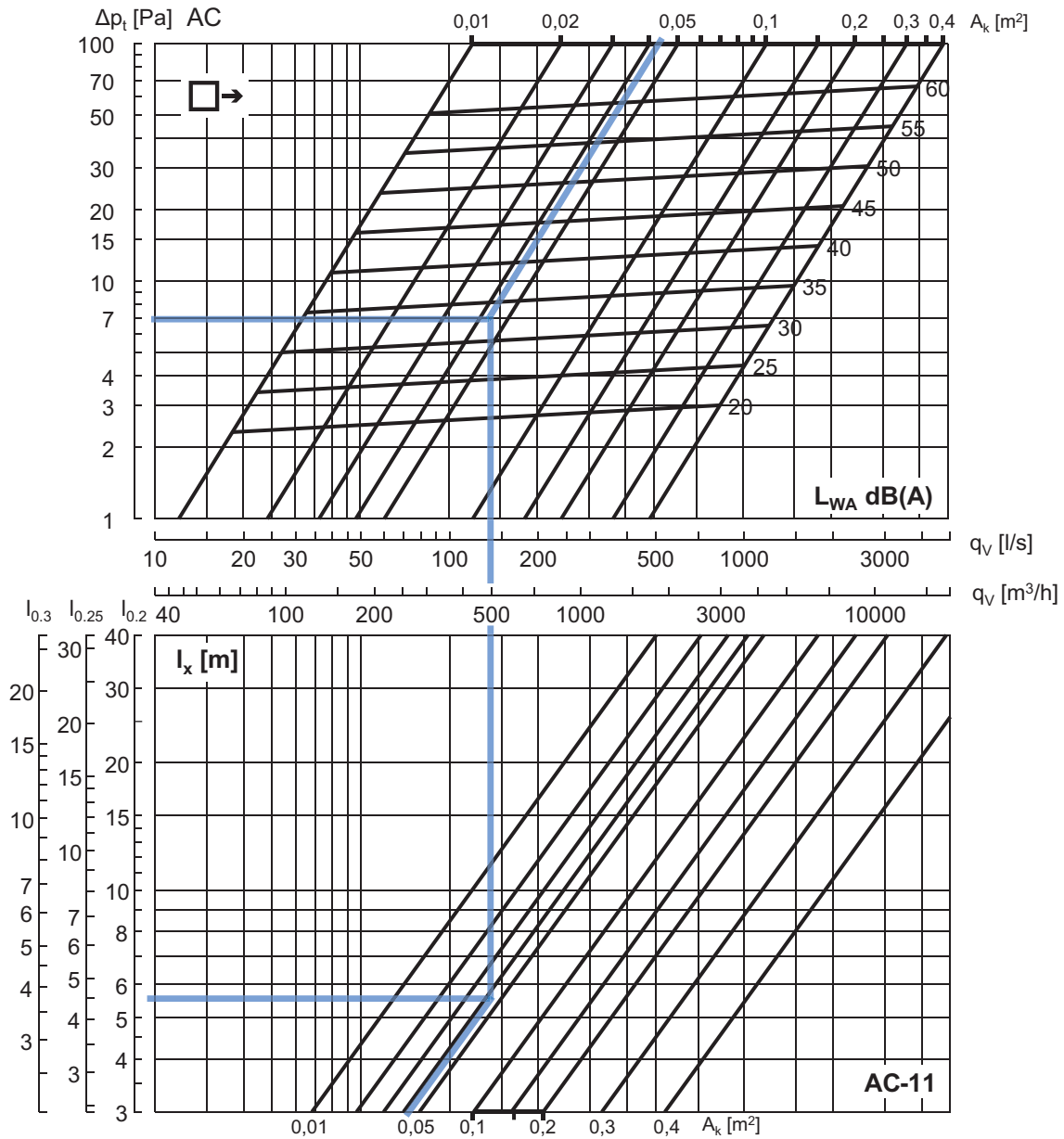
$$X = 45^\circ = \alpha = 35^\circ$$

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

Grille

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.lindab.com