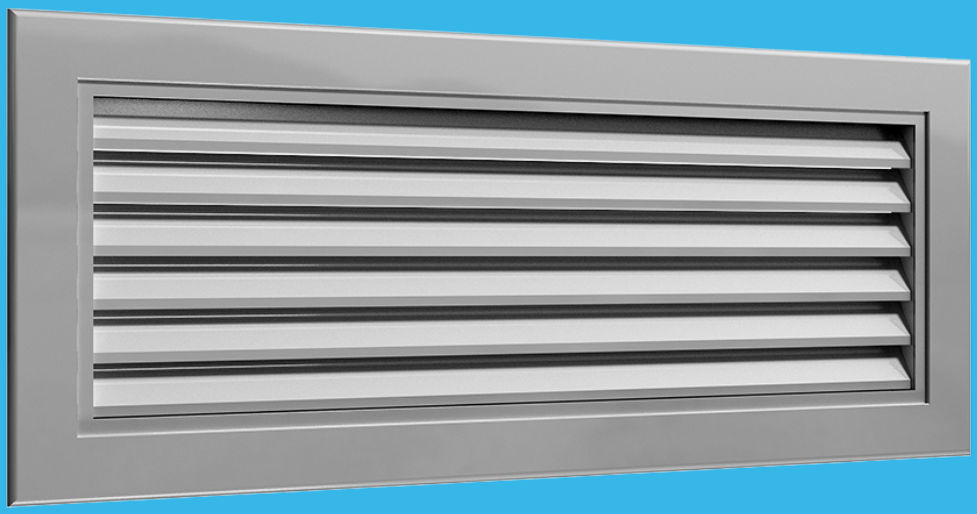


AR

Grilles Nordic version

Grille Nordic version AR

Description

AR is an extract grille with fixed 58° angled blades made of aluminium. The AR is generally used for wall 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	AR	1	1	a	b	ccc x ddd	eeee

Type
AR

Frame
1 - 25 mm frame

Grid
1 - Fixed 58º blades

Installation
- Not prepared
CN Clips
CMN Clips + mounting frame
V Visible screw holes
VMN Visible screw holes + mounting frame

Accessories
- No accessories
DN Opposed blade damper

Size
L: 100 - 1500 mm
H: 75 - 1200 mm

Grilles standard finish:
- Anodized aluminium
9003 RAL 9003, gloss 30
xxxx On request, other RAL colour

Example 1: AR-11-CMN-400-200-9003
Example 2: AR-11-600-400

Min. - max. dimensions

H \ L	100 ↔ 1200 ↔ 1500
75 ↕ 500 ↕ 1200	

Standard grilles are available with 50 mm pitch 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

Remove the grille to gain access to the plenum box or duct. External parts should be wiped with a damp cloth.

Accessories

Plenum box:	VBA
Mounting frame:	MFAN
Opposed blade damper:	DGAN

Materials and finish

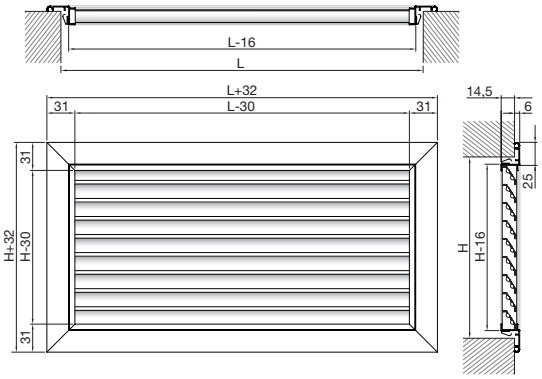
Grille frame and blades:	Anodized aluminium
Mounting frame:	Galvanized steel
Opposed blade damper:	Galvanized steel
Grilles standard finish:	- Aluminium anodized - RAL 9003, gloss 30

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

Grille Nordic version AR

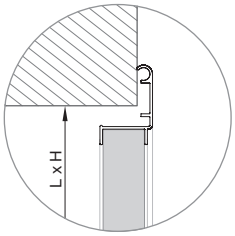
Frame and grid

AR-11 25 mm frame with fixed 58° angled blades.

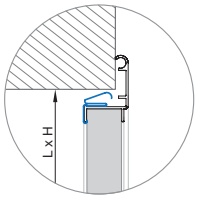


Installation

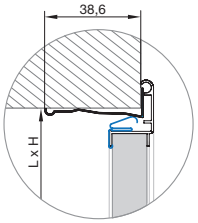
- Not prepared



CN - Clips
CMN - Clips + mounting frame

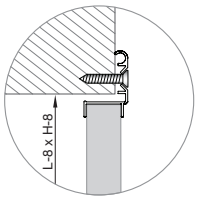


CN

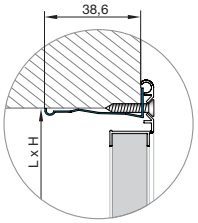


CMN

V* - Visible screw holes
VMN* - Visible screw holes + mounting frame



V*



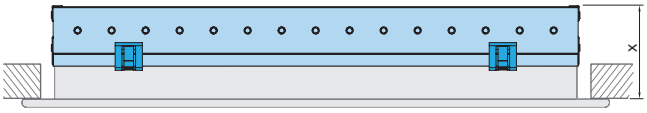
VMN*

* Screws are not included.

Accessories

- No damper

DN - Opposed blade damper DGAN



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

x = 51 mm

- plenum box
- mounting frame

Details see website on www.lindQST.com.

Grille Nordic version AR

Free area

	AR-11 Return grille $A_k(m^2)$														
H / L	**100**	**150**	**200**	**250**	**300**	**350**	**400**	**450**	**500**	**550**	**600**	**700**	**800**	**900**	**1000**
100	0.001	0.002	0.003	0.003	0.004	0.005	0.006	0.006	0.007	0.008	0.009	0.010	0.012	0.013	0.015
150	0.002	0.004	0.006	0.008	0.009	0.011	0.013	0.014	0.016	0.018	0.020	0.023	0.026	0.030	0.033
200	0.004	0.006	0.009	0.012	0.014	0.017	0.020	0.022	0.025	0.028	0.030	0.036	0.,041	0.046	0.052
250	0.005	0.009	0.012	0.016	0.020	0.023	0.027	0.030	0.034	0.038	0.041	0.049	0.056	0.063	0.070
300	0.006	0.011	0.016	0.020	0.025	0.029	0.034	0.038	0.043	0.048	0.052	0.061	0.071	0.080	0.089
350	0.008	0.013	0.019	0.024	0.030	0.035	0.041	0.046	0.052	0.058	0.063	0.074	0.085	0.096	0.107
400	0.009	0.016	0.022	0.029	0.035	0.042	0.048	0.054	0.061	0.067	0.074	0.087	0.100	0.113	0.126
450	0.010	0.018	0.025	0.033	0.040	0.048	0.055	0.062	0.070	0.077	0.085	0.100	0.115	0.129	0.144
500	0.012	0.020	0.029	0.037	0.045	0.054	0.062	0.071	0.079	0.087	0.096	0.112	0.129	0.146	0.163
550	0.013	0.022	0.032	0.041	0.050	0.060	0.069	0.079	0.088	0.097	0.107	0.125	0.144	0.163	0.181
600	0.014	0.025	0.035	0.045	0.056	0.066	0.076	0.087	0.097	0.107	0.117	0.138	0.159	0.179	0.200
700	0.017	0.029	0.042	0.054	0.066	0.078	0.090	0.103	0.115	0.127	0.139	0.164	0.188	0.212	0.237
800	0.020	0.034	0.048	0.062	0.076	0.090	0.104	0.119	0.133	0.147	0.161	0.189	0.217	0.246	0.274
900	0.022	0.038	0.054	0.071	0.087	0.103	0.119	0.135	0.151	0.167	0.183	0.215	0.247	0.279	0.311
1000	0.025	0.043	0.061	0.079	0.097	0.115	0.133	0.151	0.169	0.186	0.204	0.240	0.276	0.312	0.348

Grille Nordic version AR

Quick selection, Extract air, AR-11

Grille size [mm]			Air flow rate																		
		m³/h	30	50	100	150	200	250	300	350	400	500	600	700	800	900	1000	1200	1400	1600
	A_k [m²]	l/s	(8)	(14)	(28)	(42)	(56)	(69)	(83)	(97)	(111)	(139)	(167)	(194)	(222)	(250)	(278)	(333)	(389)	(444)
H=100		L_{WA} [dB(A)]	29	43																	
	200x100	V_k [m/s]	3,1	5,4																	
	(0,003)	Δp_t [Pa]	4	12																	
		L_{WA} [dB(A)]	<20	32	48																
	300x100	V_k [m/s]	1,9	3,4	6,8																
	(0,004)	Δp_t [Pa]	2	6	25																
		L_{WA} [dB(A)]	<20	24	41	50															
	400x100	V_k [m/s]	1,4	2,5	5	7,4															
	(0,006)	Δp_t [Pa]	1	4	15	35															
		L_{WA} [dB(A)]		<20	35	44															
	500x100	V_k [m/s]		2	3,9	5,9															
	(0,007)	Δp_t [Pa]		3	11	24															
		L_{WA} [dB(A)]		<20	30	40	47														
	600x100	V_k [m/s]		1,6	3,2	4,8	6,4														
	(0,009)	Δp_t [Pa]		2	8	18	31														
		L_{WA} [dB(A)]			23	33	40	45	49												
	800x100	V_k [m/s]			2,4	3,6	4,8	5,9	7,1												
	(0,012)	Δp_t [Pa]			5	11	19	29	42												
H=150		L_{WA} [dB(A)]		<20	29	38	45	50													
	300x150	V_k [m/s]		1,5	3	4,5	6	7,4													
	(0,009)	Δp_t [Pa]		2	7	16	28	43													
		L_{WA} [dB(A)]			22	31	38	43	47												
	400x150	V_k [m/s]			2,2	3,3	4,4	5,4	6,5												
	(0,013)	Δp_t [Pa]			4	9	17	26	37												
		L_{WA} [dB(A)]			<20	26	32	37	41	45	48										
	500x150	V_k [m/s]			1,7	2,6	3,5	4,3	5,1	6	6,9										
	(0,016)	Δp_t [Pa]			3	6	11	17	25	34	44										
		L_{WA} [dB(A)]			<20	21	28	33	37	41	44	49									
	600x150	V_k [m/s]			1,4	2,1	2,9	3,5	4,2	5	5,7	7,1									
	(0,02)	Δp_t [Pa]			2	5	8	12	18	24	32	50									
		L_{WA} [dB(A)]				<20	21	26	30	34	37	42	46	50							
	800x150	V_k [m/s]				1,6	2,1	2,6	3,1	3,7	4,2	5,3	6,3	7,3							
	(0,026)	Δp_t [Pa]				3	5	7	11	15	19	30	43	58							
H=200		L_{WA} [dB(A)]			<20	21	28	32	37	40	44	49									
	400x200	V_k [m/s]			1,4	2,1	2,8	3,5	4,2	4,9	5,6	7									
	(0,02)	Δp_t [Pa]			2	5	8	12	18	24	31	49									
		L_{WA} [dB(A)]				<20	22	27	31	35	38	43	47								
	500x200	V_k [m/s]				1,7	2,2	2,7	3,3	3,9	4,4	5,5	6,7								
	(0,025)	Δp_t [Pa]				3	5	8	12	16	21	33	47								
		L_{WA} [dB(A)]				<20	<20	22	27	30	33	39	43	47	50						
	600x200	V_k [m/s]				1,4	1,8	2,3	2,7	3,2	3,6	4,6	5,5	6,4	7,3						
	(0,03)	Δp_t [Pa]				2	4	6	8	11	15	23	34	46	60						
		L_{WA} [dB(A)]					<20	<20	20	23	26	32	36	40	43	45	48				
	800x200	V_k [m/s]					1,4	1,7	2	2,4	2,7	3,4	4,1	4,7	5,4	6,1	6,8				
	(0,041)	Δp_t [Pa]					2	3	5	7	9	14	20	27	35	45	56				
H=300		L_{WA} [dB(A)]						<20	<20	22	25	31	35	38	42	44	47				
	500x300	V_k [m/s]						1,6	1,9	2,3	2,6	3,2	3,9	4,5	5,2	5,8	6,5				
	(0,043)	Δp_t [Pa]						3	5	6	8	13	18	25	33	41	51				
		L_{WA} [dB(A)]						<20	<20	<20	21	26	30	34	37	40	42	47	50		
	600x300	V_k [m/s]						1,3	1,6	1,9	2,1	2,7	3,2	3,7	4,3	4,8	5,3	6,4	7,5		
	(0,052)	Δp_t [Pa]						2	3	4	6	9	13	18	23	29	36	52	71		
		L_{WA} [dB(A)]								<20	<20	<20	23	27	30	33	35	40	43	46	
	800x300	V_k [m/s]								1,4	1,6	2	2,4	2,8	3,1	3,5	3,9	4,7	5,5	6,3	
	(0,071)	Δp_t [Pa]								3	3	5	8	10	14	17	21	31	42	55	

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

Data valid for:

- Extract air

Terminology:

- A_k = effective free area
- V_k = effective face velocity
- Δp_t = total pressure loss
- L_{WA} = sound power level

Grille Nordic version AR

Technical data

Capacity

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

Sound power level L_{WA}

Sound power level L_{WA} [dB(A)] can be seen in the diagrams and apply for grilles without an opposed blade damper.

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**
Extract	-2	-7	-5	-2	-7	-18	-21	-19

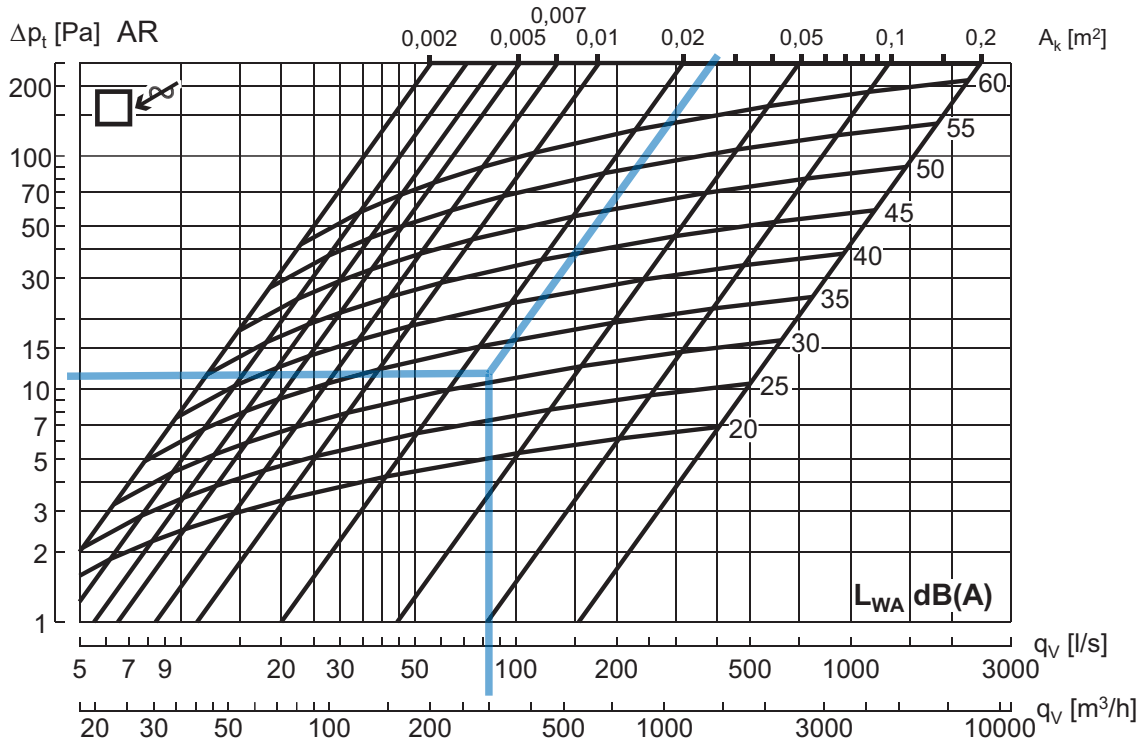
Opposed blade damper DGAN

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 1.3	x 2.3	x 5
Sound power level L_{WA}	+ 1	+ 4	+ 12

Grille Nordic version AR

Technical data



Example:

Grille size (LxH): 500×200 mm
Free area A_k: 0.025 m²
Air flow rate q_v: 300 m³/h (85 l/s)

Result:
Sound power level L_{WA}: ~31 [dB(A)]
Total presure loss Δp_t: ~12 [Pa]

Data valid for:

- Extract air

For grilles with free area > 0.2 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.

Lindab | For a better climate

www.lindab.com

Lindab®
For a better climate