

# AR

Grilles Global version



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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

Product	AR	1	1	a	b	ccc	x	ddd	eeee
<b>Type</b>									
AR									
<b>Frame</b>									
1 - 25 mm frame									
<b>Grid</b>									
1 - Fixed 58° blades									
<b>Installation</b>									
- Not prepared									
C Clips									
CM Clips + mounting frame									
V Visible screw holes									
VM Visible screw holes + mounting frame									
<b>Accessories</b>									
- No accessories									
D Opposed blade damper									
<b>Size</b>									
L: 100 - 1500 mm									
H: 75 - 1200 mm									
<b>Grilles standard finish:</b>									
- Anodized aluminium									
9003 RAL 9003, gloss 30									
xxxx On request, other RAL colour									

Example 1: AR-11-CM-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](http://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: [PBA](#), [VBX](#)
- Mounting frame: [MFA](#)
- Opposed blade damper: [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 9003, gloss 30

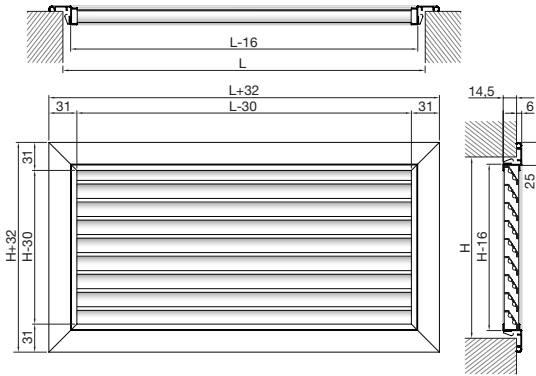
The grille is available in other colours. Please contact Lindab's sales department for further information.

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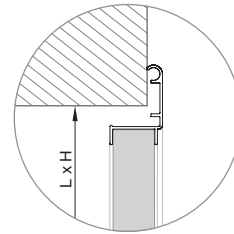
## Frame and grid

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



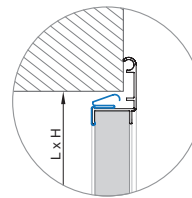
## Installation

- Not prepared

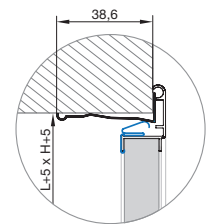


**C** - Clips

**CM** - Clips + mounting frame



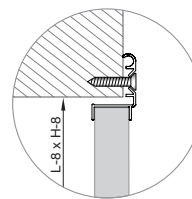
**C**



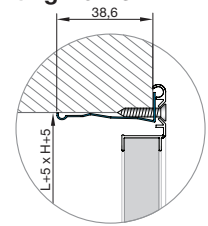
**CM**

**V\*** - Visible screw holes

**VM\*** - Visible screw holes + mounting frame



**V\***



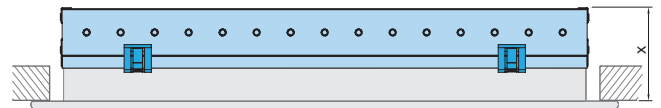
**VM\***

\* Screws are not included.

## Accessories

- No damper

**D** - Opposed blade damper DGA



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

x = 51 mm

- plenum box
- mounting frame

Details see website on [www.lindQST.com](http://www.lindQST.com).

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## Free area

H / L	AR-11 Return grille A <sub>k</sub> (m <sup>2</sup> )														
	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

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## Quick selection, Extract air, AR-11

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

10 ≤ LWA < 30      30 ≤ LWA < 40      40 ≤ LWA < 50

### Data valid for:

- Extract air

### Terminology:

- A<sub>k</sub> = effective free area
- V<sub>k</sub> = effective face velocity
- Δp<sub>t</sub> = total pressure loss
- L<sub>WA</sub> = sound power level

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## Technical data

### Capacity

Air flow rate  $q_v$  [l/s] and [m<sup>3</sup>/h], total pressure loss  $\Delta p_t$  [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 DGA

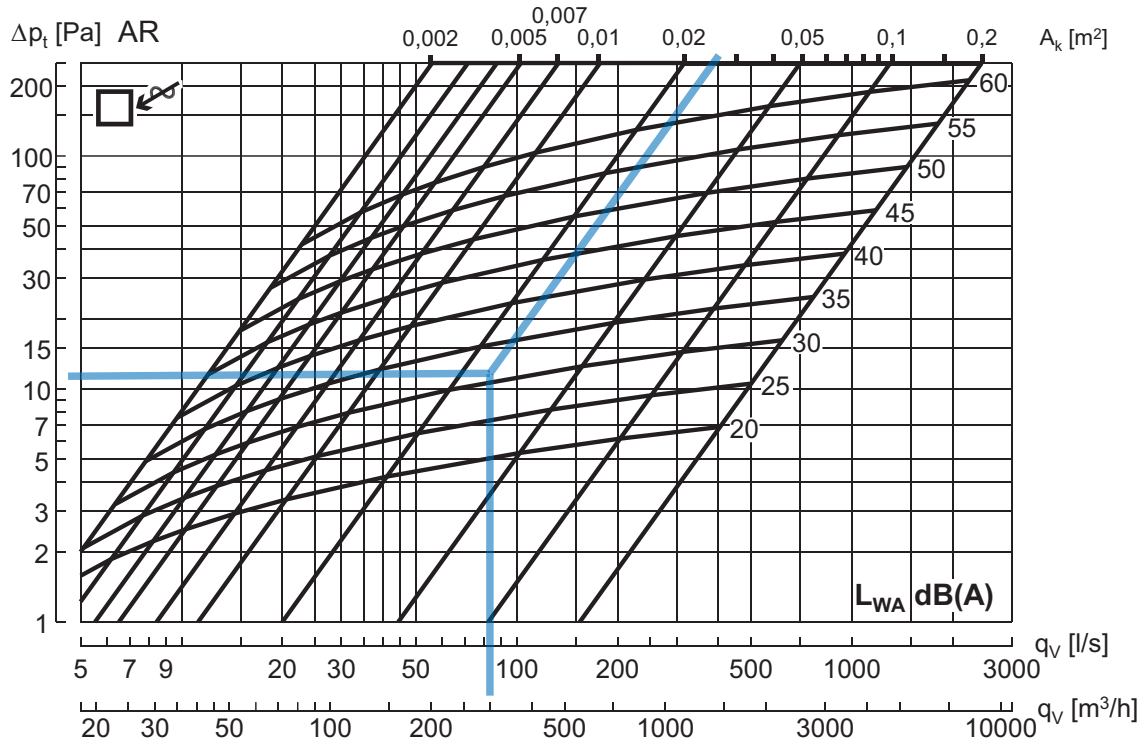
Correction of total pressure loss  $\Delta p_t$  [Pa] and sound power level  $L_{WA}$  [dB(A)] using a damper. See table below.

Damper position	Open	25%	50%
		Closed	Closed
Total pressure loss $\Delta p_t$	x 1.3	x 2.3	x 5
Sound power level $L_{WA}$	+ 1	+ 4	+ 12

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## Technical data



**Example:**

Grille size (LxH): 500x200 mm  
 Free area  $A_k$ : 0.025 m<sup>2</sup>  
 Air flow rate  $q_v$ : 300 m<sup>3</sup>/h (85 l/s)  
 Result:  
 Sound power level  $L_{WA}$ : ~31 [dB(A)]  
 Total pressure loss  $\Delta p_t$ : ~12 [Pa]

**Data valid for:**

- Extract air  
 For grilles with free area > 0.2 m<sup>2</sup>, we refer to use Lindabs online calculation tool on [www.lindqst.com](http://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