

# AR

Grilles Global version



# Grille Global 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

<b>Product</b>	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 9010 RAL 9010, gloss 30 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

<b>H</b>	<b>L</b>	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 9010, gloss 30 - RAL 9003, gloss 30

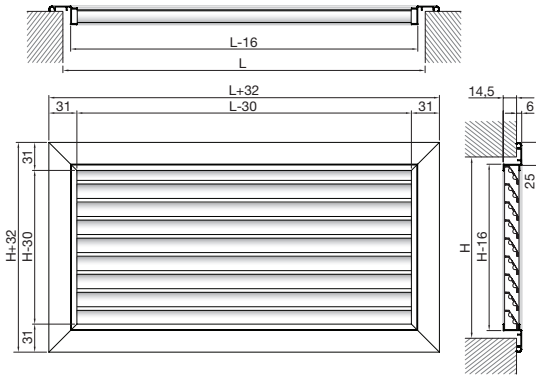
The grille is available in other colours. Please contact Lindab's sales department for further information.

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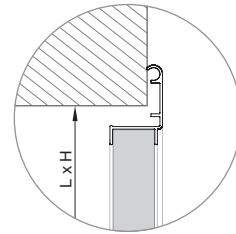
## Frame and grid

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



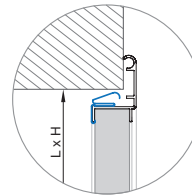
## Installation

- Not prepared

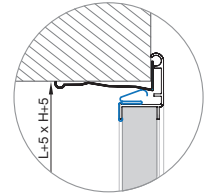


**C** - Clips

**CM** - Clips + mounting frame



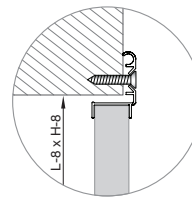
**C**



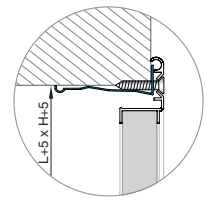
**CM**

**V\*** - Visible screw holes

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



**V\***



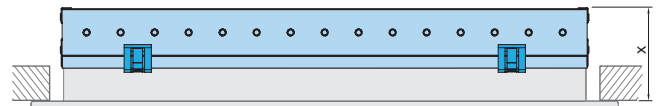
**VM\***

\* 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
<b>100</b>	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
<b>150</b>	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
<b>200</b>	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
<b>250</b>	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
<b>300</b>	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
<b>350</b>	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
<b>400</b>	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
<b>450</b>	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
<b>500</b>	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
<b>550</b>	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
<b>600</b>	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
<b>700</b>	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
<b>800</b>	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
<b>900</b>	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
<b>1000</b>	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	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

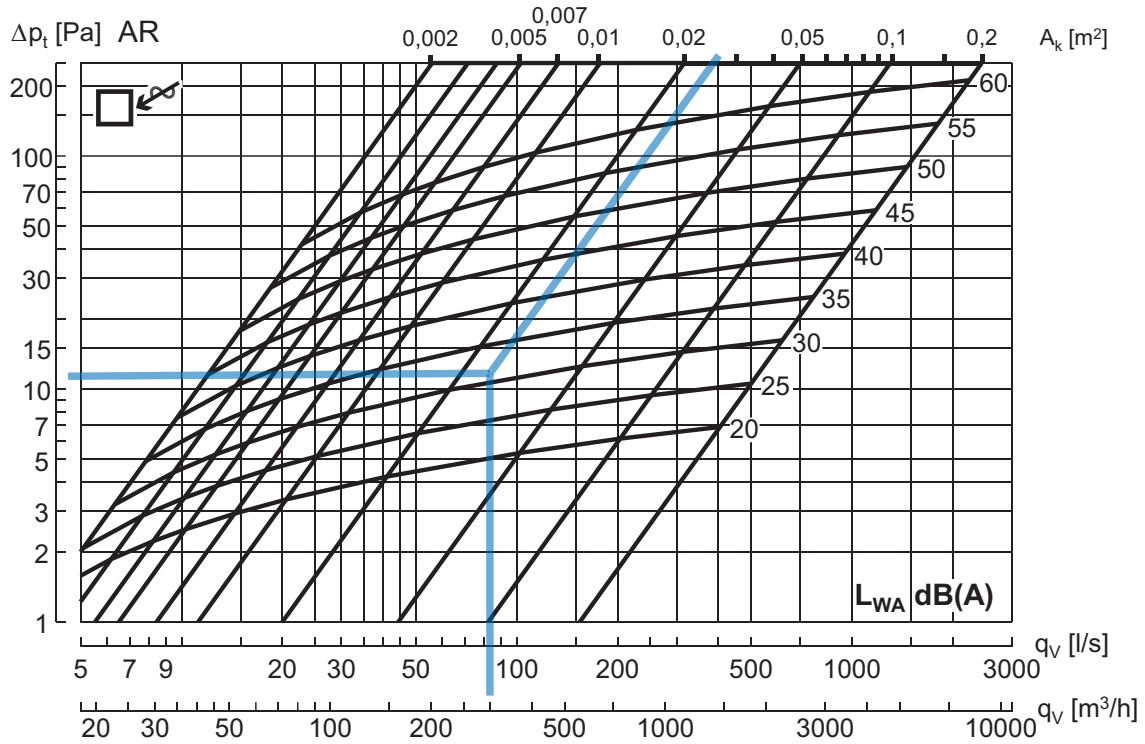
Correction of total pressure loss  $\Delta p_t$  [Pa] and sound power level  $L_{WA}$  [dB(A)] using a damper. See table below.

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.lindab.com](http://www.lindab.com)



## Good Thinking

**At Lindab**, good thinking is a philosophy that guides us in everything we do. We have made it our mission to create a healthy indoor climate – and to simplify the construction of sustainable buildings. We do that by designing innovative products and solutions that are easy to use, as well as offering efficient availability and logistics. We are also working on ways to reduce our impact on our environment and climate. We do that by developing methods to produce our solutions using a minimum of energy and natural resources, and by reducing negative effects on the environment. We use steel in our products. It's one of few materials that can be recycled an infinite number of times without losing any of its properties. That means less carbon emissions in nature and less energy wasted.

**We simplify construction**