

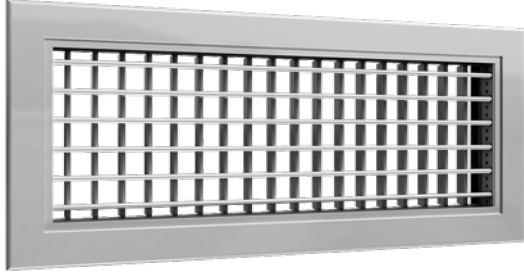
# AD

Grilles Global version



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AD



## Description

AD is an adjustable single or double deflection grille made of aluminium. With adjustable blades, the grille is very useful for air supply and can be adapted to the required throw and air spread pattern.

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  $L + 5 \times H + 5$
  - Nordic version: wall opening is  $L \times H$

## Order code

Product	AD	a	b	c	d	eee	x	fff	gggg
<b>Type</b>	AD								
<b>Frame</b>									
1 - Single deflection, 25 mm frame									
2 - Double deflection, 25 mm frame									
<b>Grid</b>									
1 - Horizontal									
2 - Vertical									
<b>Installation</b>									
- 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									
<b>Accessories</b>									
- No accessories									
D Opposed blade damper									
<b>Size</b>									
L: 100 - 1500 mm									
H: 75 - 1500 mm									
<b>Grilles standard finish:</b>									
- Anodized aluminium									
9003 RAL 9003, gloss 30									
xxxx On request, other RAL colour									

Example 1: AD-21-C-300-150-9003

Example 2: AD-22-600-200

## Min. - max. dimensions

H \ L	100	600	1200	1500
75				
600				
1200				
1500				

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

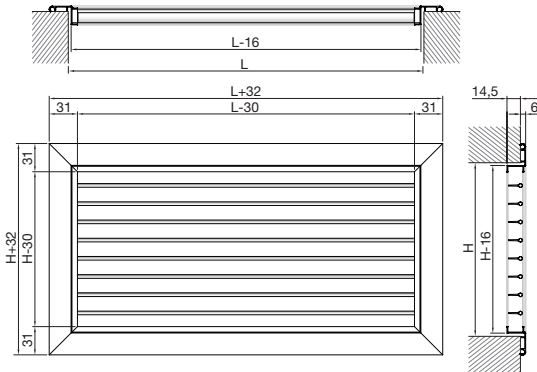
The grille is available in other colours. Please contact Lindab's sales department for further information.

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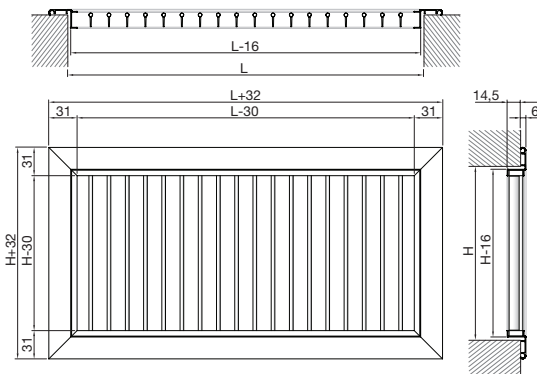
# AD

## Frame and grid

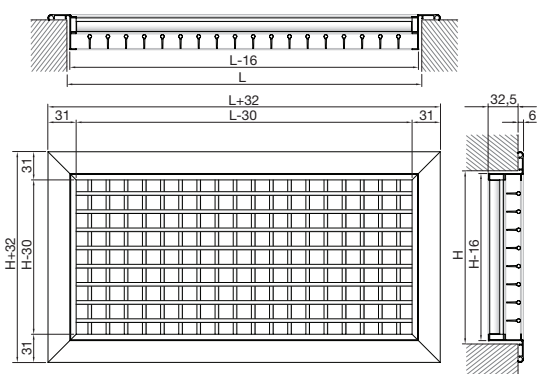
**AD-11** Single deflection with horizontal blades.



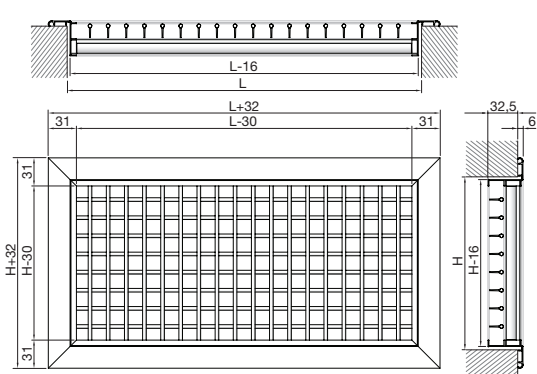
**AD-12** Single deflection with vertical blades.



**AD-21** Double deflection with horizontal front blades.

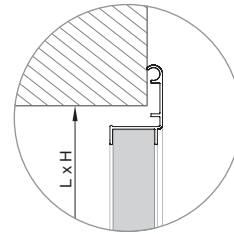


**AD-22** Double deflection with vertical front blades.



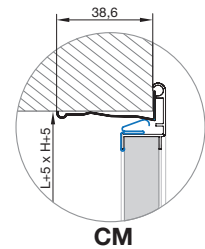
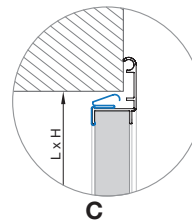
## Installation

- Not prepared



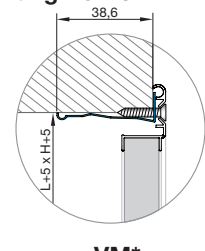
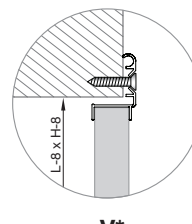
**C** - Clips

**CM** - Clips + mounting frame



**V\*** - Visible screw holes

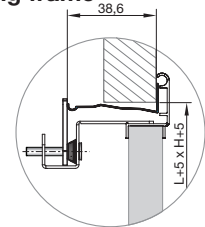
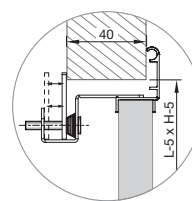
**VM\*** - Visible screw holes + mounting frame



\* Screws are not included.

**H\*\*** - Hidden screws

**HM\*\*** - Hidden screws + mounting frame



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

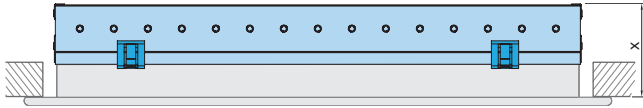
# Grille Global version

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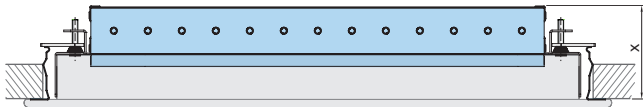
## Accessories

- 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.

- 1 - Single deflection                      x = 51 mm
- 2 - Double deflection                    x = 69 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
↕	Not available sizes
1000	800 x 1000
↕	
1200	600 x 1200

DGA in combination with hidden screw installation.

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

- plenum box
- mounting frame

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

# Grille Global version

# AD

## Free area

H / L	AD-2 Deflection 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>75</b>	0,003	0,005	0,007	0,010	0,012	0,014	0,016	0,018	0,021	0,023	0,025	0,029	0,034	0,038	0,043
<b>100</b>	0,005	0,008	0,012	0,015	0,018	0,022	0,025	0,029	0,032	0,036	0,039	0,046	0,053	0,060	0,066
<b>150</b>	0,008	0,014	0,020	0,026	0,032	0,038	0,043	0,049	0,055	0,061	0,067	0,079	0,090	0,102	0,114
<b>200</b>	0,012	0,020	0,028	0,037	0,045	0,053	0,062	0,070	0,078	0,086	0,095	0,111	0,128	0,145	0,161
<b>250</b>	0,015	0,026	0,037	0,047	0,058	0,069	0,080	0,090	0,101	0,112	0,123	0,144	0,166	0,187	0,209
<b>300</b>	0,018	0,032	0,045	0,058	0,071	0,084	0,098	0,111	0,124	0,137	0,151	0,177	0,203	0,230	0,256
<b>350</b>	0,022	0,038	0,053	0,069	0,084	0,100	0,116	0,131	0,147	0,163	0,178	0,210	0,241	0,272	0,304
<b>400</b>	0,025	0,043	0,062	0,080	0,098	0,116	0,134	0,152	0,170	0,188	0,206	0,242	0,279	0,315	0,351
<b>450</b>	0,029	0,049	0,070	0,090	0,111	0,131	0,152	0,173	0,193	0,214	0,234	0,275	0,316	0,357	0,398
<b>500</b>	0,032	0,055	0,078	0,101	0,124	0,147	0,170	0,193	0,216	0,239	0,262	0,308	0,354	0,400	0,446
<b>550</b>	0,036	0,061	0,086	0,112	0,137	0,163	0,188	0,214	0,239	0,264	0,290	0,341	0,392	0,442	0,493
<b>600</b>	0,039	0,067	0,095	0,123	0,151	0,178	0,206	0,234	0,262	0,290	0,318	0,373	0,429	0,485	0,541
<b>700</b>	0,046	0,079	0,111	0,144	0,177	0,210	0,242	0,275	0,308	0,341	0,373	0,439	0,505	0,570	0,636
<b>800</b>	0,053	0,090	0,128	0,166	0,203	0,241	0,279	0,316	0,354	0,392	0,429	0,505	0,580	0,655	0,730
<b>900</b>	0,060	0,102	0,145	0,187	0,230	0,272	0,315	0,357	0,400	0,442	0,485	0,570	0,655	0,740	0,825
<b>1000</b>	0,066	0,114	0,161	0,209	0,256	0,304	0,351	0,398	0,446	0,493	0,541	0,636	0,730	0,825	0,920

# Grille Global version

AD

## Quick selection, Supply air, AD-2

Grille size [mm]		Air flow rate																				
		m³/h l/s	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)	1250 (347)	1500 (417)	2000 (556)	2500 (694)	3000 (833)		
H=100	200x100 (0,012)	L <sub>WA</sub> [dB(A)]	20	32	41	47																
		V <sub>k</sub> [m/s]	2,4	3,6	4,8	5,9																
		Δp <sub>t</sub> [Pa]	4	10	17	26																
		L <sub>0,2</sub> [m]	4,5	6,6	8,7	10,6																
		300x100 (0,018)	L <sub>WA</sub> [dB(A)]		21	29	35	41	45	49												
		V <sub>k</sub> [m/s]		2,3	3	3,7	4,5	5,2	6													
H=150	300x150 (0,032)	L <sub>WA</sub> [dB(A)]			<20	21	27	33	37	41	48											
		V <sub>k</sub> [m/s]			1,7	2,2	2,7	3,3	3,8	4,4	5,5											
		Δp <sub>t</sub> [Pa]			2	4	6	8	11	14	23											
		L <sub>0,2</sub> [m]			4,3	5,7	7	8,3	9,6	10,9	13,5											
		400x150 (0,043)	L <sub>WA</sub> [dB(A)]			<20	<20	22	26	30	37	42	47									
		V <sub>k</sub> [m/s]				1,6	1,9	2,2	2,6	3,2	3,8	4,5	5,1									
H=200	400x200 (0,0615)	L <sub>WA</sub> [dB(A)]				<20	<20	22	28	34	40	44	48									
		V <sub>k</sub> [m/s]				1,5	1,8	2	2,5	3	3,5	4	4,5	5								
		Δp <sub>t</sub> [Pa]				2	2	3	5	7	9	12	15	19								
		L <sub>0,2</sub> [m]				5,4	6,3	7,2	8,9	10,6	12,2	13,9	15,5	17,2								
		500x200 (0,078)	L <sub>WA</sub> [dB(A)]				<20	<20	22	28	34	38	42	46	49							
		V <sub>k</sub> [m/s]																				
H=300	500x300 (0,124)	L <sub>WA</sub> [dB(A)]							<20	21	26	30	33	36	43	48						
		V <sub>k</sub> [m/s]							1,5	1,8	2,1	2,5	2,8	3,1	3,8	4,6						
		Δp <sub>t</sub> [Pa]							2	3	3	5	6	7	11	16						
		L <sub>0,2</sub> [m]							6,8	8,1	9,4	10,6	11,9	13,2	16,3	19,4						
		600x300 (0,151)	L <sub>WA</sub> [dB(A)]							<20	<20	20	24	28	32	35	42	47				
		V <sub>k</sub> [m/s]								1,3	1,5	1,7	2	2,2	2,7	3,3	4,3					

10 ≤ L<sub>WA</sub> < 30

30 ≤ L<sub>WA</sub> < 40

40 ≤ L<sub>WA</sub> < 50

**Data valid for:**

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

**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
- l<sub>0,2</sub> = throw to terminal velocity at 0.2 m/s

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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], 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].

Blade settings	45°	90°
Throw $l_x$	x 0.84	x 0.65
Sound power level $L_{WA}$	+ 4	+ 7
Total pressure loss $\Delta p_t$	x 1.1	x 1.3

### 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	7	5	0	-3	-8	-14	-13	-9
Extract air	5	4	1	-2	-9	-16	-15	-8

### Opposed blade damper DGA

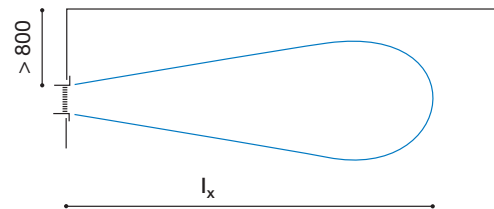
Correction of total pressure loss  $\Delta p_t$  [Pa] and sound power level  $L_{WA}$  [dB(A)] using a damper. See table below.

Damper position	Open	25%	50%
		Closed	Closed
Total pressure loss $\Delta p_t$	x 1.06	x 2.8	x 11
Sound power level $L_{WA}$	+ 2	+ 15	+ 25

## Throw and air jet dispersal

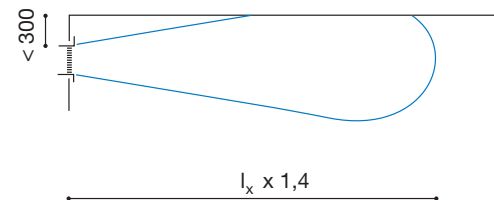
### Throw

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



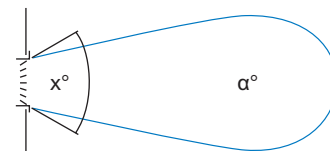
For grilles installed less than 300 mm from the ceiling, the air throw is extended by 40% so that:

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



### Air jet dispersal

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



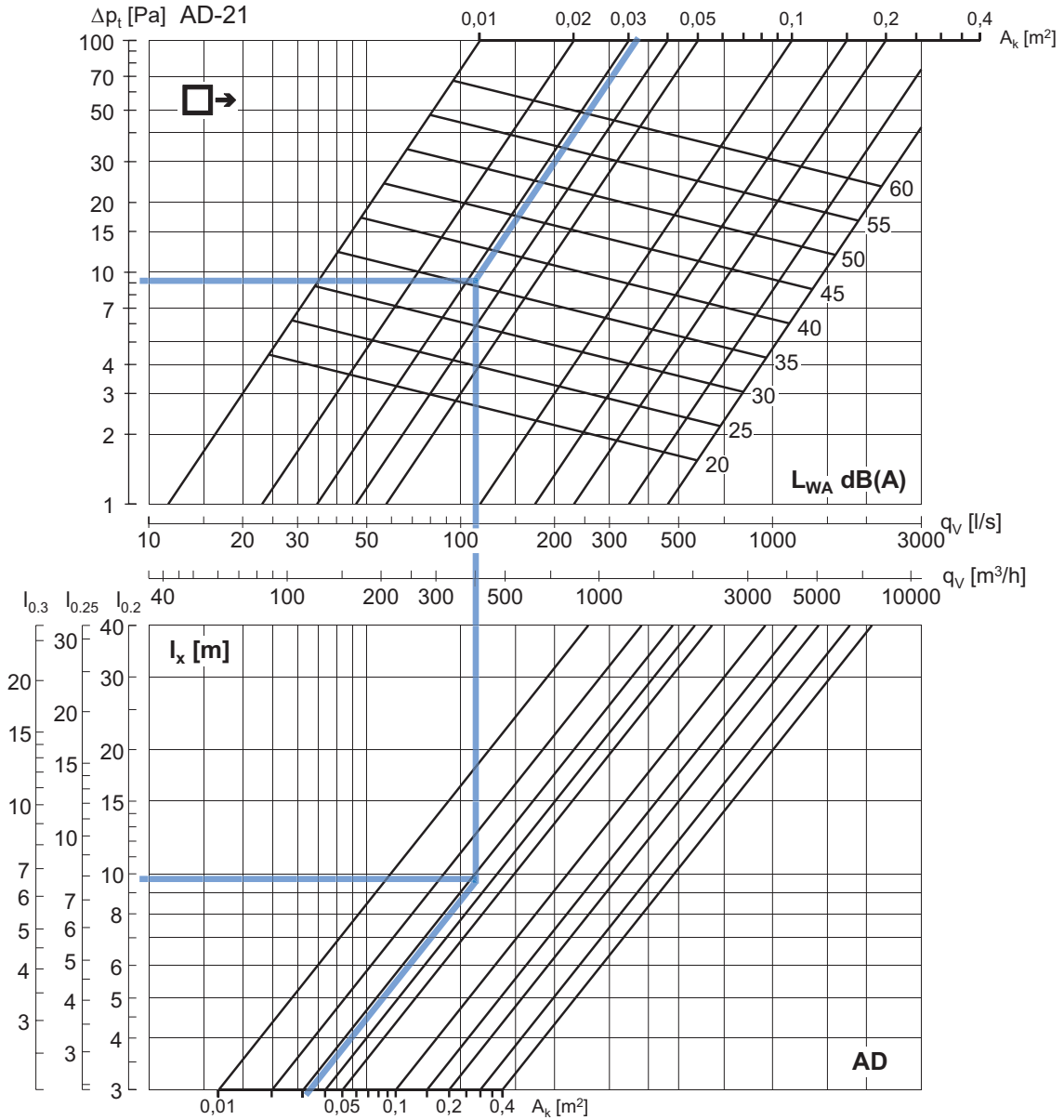
$$X = 45^\circ = \alpha = 35^\circ$$

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

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AD

## Technical data



### Example AD-21:

Grille size (LxH): 300x150 mm  
 Free area  $A_k$ : 0.032 m<sup>2</sup>  
 Air flow rate  $q_v$ : 400 m<sup>3</sup>/h (111 l/s)

### Result:

Sound power level  $L_{WA}$ : ~36 [dB(A)]  
 Total pressure loss  $\Delta p_t$ : ~9 [Pa]  
 Throw  $l_{0.2}$ : ~10 [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 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