

Ventilation grilles for floor installation

Type AF



Ventilation grille made of aluminium, with fixed longitudinal blades, for floor installation – also for horizontal runs

Single ventilation grilles and horizontal run sections with special profiled blades

- Nominal sizes 300 × 75 – 1800 × 300 mm and horizontal run sections
- Volume flow rate range 17 – 1350 l/s or 61 – 4860 m³/h
- Grille face made of aluminium with powder-coat finish
- Front border suitable for floor installation without an installation subframe
- Removable grille core with special spring clip fixing

Optional equipment and accessories

- Grille face in RAL CLASSIC colours
- Attachments for volume flow rate balancing and air direction control

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Description

Application

- Ventilation grille of Type AF as supply air or extract air variant for comfort zones and industrial zones
- Directed supply air discharge for mixed flow ventilation
- Blades for straight (0°) or angled (15°) air discharge to meet different local requirements
- For variable and constant volume flows
- For supply air to room air temperature differences from –12 to +4 K
- Preferably for floor installation

Variants

- AF: Single grille
- EL, ER, M: Horizontal run section
- AFH: Sidewall grille with lightweight core

Blade construction style

- 0: 0° discharge
- 15: 15° discharge

Nominal sizes

Single grille

- Nominal length: 300mm up to 1800mm (50mm increments)
- Nominal height: 75mm up to 300mm (25mm increments)

Intermediate sizes upon request

Horizontal run section

- Nominal length of end section: 900mm up to 1799mm, (1mm increments)
- Nominal length of middle section: 1800 mm
- Nominal height: 75mm up to 300mm (25mm increments)

Intermediate sizes upon request

Attachments

- AG, D, DG: For volume flow rate balancing and for air direction control

Special characteristics

- Blades for straight (0°) or angled (15°) air discharge to meet different local requirements

Parts and characteristics

- Rectangular profile border sections
- Fixed horizontal blades
- Vertical lateral mullions

Materials and surfaces

- Border and blades made of aluminium
- P2: Border and blades powder-coated, RAL9006:25%
- P3: Border and blades powder-coated, RAL9010:20%
- P6: Powder-coated RAL CLASSIC colour. Gloss level: 25%

Installation and commissioning

- Preferably for floor installation

Standards and guidelines

- Sound power level of the air-regenerated noise measured according to EN ISO 5135

Maintenance

- Maintenance-free as construction and materials are not subject to wear
- Inspection and cleaning to VDI 6022

Technical data

Nominal sizes	300 × 75 to 1800 × 300 mm
Horizontal run section	H: 75 mm up to 300 mm
Minimum volume flow rate	17 – 525 l/s or 61 – 1890 m ³ /h
Maximum volume flow rate, with L _{WA} max. 40 dB(A) without attachments	75 – 1350 l/s or 270 – 4860 m ³ /h
Supply air to room air temperature difference	–12 to +4 K

Volume flow rates for single grille for supply air.

Supply air

Effective air discharge area

H	L [mm]							
	300	400	500	600	700	800	900	1000
mm	A_{eff} m ²							
75	0.008	0.011	0.014	0.017	0.019	0.022	0.025	0.028
100	0.012	0.016	0.020	0.024	0.028	0.032	0.037	0.041
150	0.019	0.026	0.033	0.039	0.046	0.053	0.060	0.066
200	0.027	0.036	0.045	0.055	0.064	0.073	0.083	0.092
250	0.034	0.046	0.058	0.070	0.082	0.094	0.106	0.118
300	0.041	0.056	0.070	0.085	0.100	0.114	0.129	0.144

H	L [mm]							
	1100	1200	1300	1400	1500	1600	1700	1800
mm	A_{eff} m ²							
75	0.031	0.033	0.036	0.039	0.042	0.045	0.047	0.050
100	0.045	0.049	0.053	0.057	0.061	0.065	0.070	0.074
150	0.073	0.080	0.087	0.093	0.100	0.107	0.114	0.120
200	0.102	0.111	0.120	0.130	0.139	0.148	0.158	0.167
250	0.130	0.142	0.154	0.166	0.178	0.190	0.202	0.214
300	0.158	0.173	0.188	0.202	0.217	0.232	0.246	0.261

Extract air

Effective air intake area

H	L [mm]							
	300	400	500	600	700	800	900	1000
mm	A_{eff} m ²							
75	0.008	0.010	0.013	0.015	0.017	0.020	0.022	0.024
100	0.010	0.014	0.017	0.020	0.024	0.027	0.030	0.033
150	0.016	0.021	0.026	0.031	0.036	0.041	0.047	0.052
200	0.021	0.028	0.035	0.042	0.049	0.056	0.063	0.070
250	0.026	0.035	0.044	0.053	0.062	0.071	0.079	0.088
300	0.031	0.042	0.053	0.064	0.074	0.085	0.096	0.107

H	L [mm]							
	1100	1200	1300	1400	1500	1600	1700	1800
mm	A_{eff} m ²							
75	0.027	0.029	0.031	0.034	0.036	0.038	0.041	0.043
100	0.037	0.040	0.043	0.046	0.050	0.053	0.056	0.060
150	0.057	0.062	0.067	0.072	0.077	0.083	0.088	0.093
200	0.077	0.084	0.091	0.098	0.105	0.112	0.119	0.126
250	0.097	0.106	0.115	0.124	0.133	0.142	0.150	0.159
300	0.117	0.128	0.139	0.150	0.160	0.171	0.182	0.193

Function

Functional description

Ventilation grilles are air terminal devices for the supply air and extract air of ventilation and air conditioning systems. They direct the supply air into the room. Ventilation grilles with adjustable blades allow for adapting the discharge direction to the local conditions. The result is a mixed flow ventilation in comfort zones and industrial zones, with good overall room ventilation.

Induction slows the airflow down, i.e. the airflow velocity decreases as the distance from the grille increases. The distance at which the airflow velocity reaches a certain defined value, e.g. 0.5m/s, is called throw distance.

The supply air jet from floor grilles that are installed near the wall achieves a larger throw distance than a free jet (from a grille that is not installed near the wall). Single grilles, groups of grilles and continuous horizontal runs all achieve different throw distances.

In cooling mode it is necessary to take account of the jet deviation towards the occupied zone, which increases as the supply air to room air temperature difference increases and the discharge velocity decreases. In heating mode the supply air jet deviates towards the ceiling. This has no negative effect on the airflow velocity in the occupied zone, but it may affect the complete ventilation of the room.

Principal dimensions

L [mm]

Nominal length of the ventilation grille

m [kg]

Weight

H [mm]

Nominal height of the ventilation grille

Nomenclature

L_{WA} [dB(A)]

Sound power level of the air-regenerated noise

l_s [m]

Distance from single grille or horizontal run section (throw distance)

\dot{V} [m³/h] and [l/s]

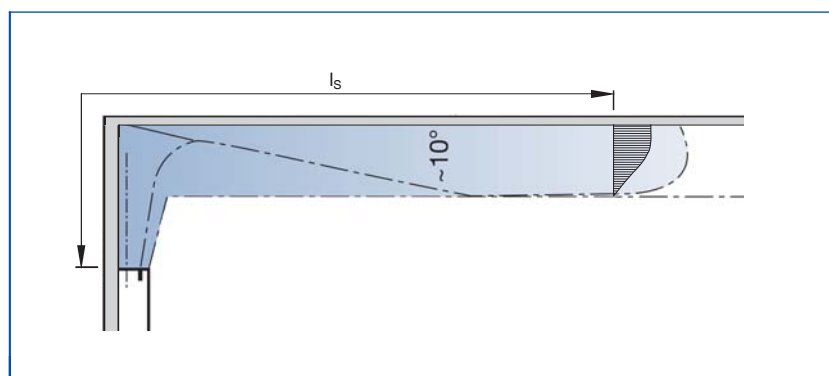
Volume flow rate

Δp_t [Pa]

Total differential pressure

Air pattern

Air pattern with ceiling effect, sectional view



Sizing with the help of this catalogue

This catalogue provides convenient quick sizing tables for ventilation grilles. The volume flow rates apply to a nominal grille length [L] of 1000mm, maximum sound power level of the air-regenerated noise of 40 dB(A) with an open damper unit (unrestricted airflow) and maximum 15Pa pressure drop.

Correction factors for other nominal grille lengths are provided below.

Throw length [I_s] provided in metres to a maximum time average velocity [V_L] of 0.7m/s without rear deflection blades.

For reduced throw applications, rear deflection blades ...-D, ...-DG should be used. Refer to correction factors for adjustment to the figures below.

Correction factors for other terminal velocities are provided below.

Technical data

The tables give supply air volume flow rates for all nominal sizes.

Volume flow rates apply to a nominal grille length [L] of 1000mm, max. sound power level of the air-regenerated noise of 40 dB(A) with an open damper unit (unrestricted airflow) and maximum 15Pa pressure drop.

Throw length [I_s] provided to a maximum time average air velocity [V_L] of 0.7m/s without rear deflection blades.

Supply air

Flow rate and throw distance														
V (l/s/m)	60	85	100	125	150	175	200	225	250	275	300	350	400	450
H (mm)	I _s (m)													
75	3.4	4.8	5.6	7.0										
100		4.0	4.7	5.8	7.0	8.1								
150					5.5	6.4	7.3	8.2	9.1					
200							6.2	7.0	7.7	8.5	9.3	10.8	12.4	
250									6.8	7.5	8.2	9.6	10.9	12.3
300											7.4	8.7	9.9	11.1

Nominal length correction

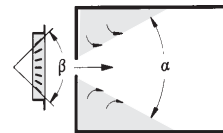
Throw length correction based on grille length

Nominal grille length [m]	0.3	0.6	0.9	1.0	1.2	1.5	1.8
Correction factor [K _l]	x 0.55	x 0.78	x 0.95	x 1.00	x 1.09	x 1.22	x 1.34

Throw length correction

Throw length correction (for setting of blade divergence)

β	45°	90°
α	35°	60°
I _s	x 0.7	x 0.5
Δt _i / Δt _z	x 0.7	x 0.5
With ceiling effect B ≧	L _S x 0.2	L _S x 0.3
Without ceiling effect B ≧	L _S x 0.25	L _S x 0.3



Velocity correction

Velocity correction

Maximum time average velocity	0.5 m/s	0.25 m/s
I _s	x 1.4	x 2.8

Technical data

The tables gives extract air volume flow rates, based on l/s/m for a maximum 5Pa, 10Pa or 15Pa limit.

Maximum sound power level of the air-regenerated noise of 40 dB(A) with an open damper unit (unrestricted airflow)

Extract Air

Extract Air Volume			
Δp (Pa)	5	10	15
H (mm)	V (l/s/m)		
75	78	111	136
100	113	160	195
150	182	257	315
200	251	355	435
250	320	453	554
300	389	550	674
350	458	648	794
400	527	746	913
450	596	843	1033
500	665	941	1152
550	734	1039	1272
600	803	1136	1392

Easy Product Finder



The Easy Product Finder allows you to size products using your project-specific data

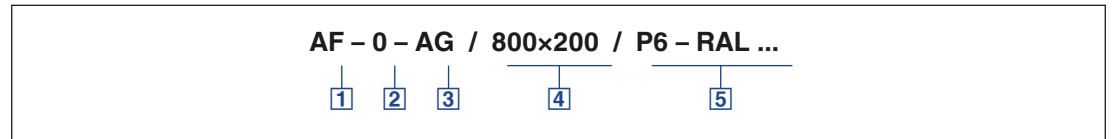
You will find the Easy Product Finder on our website.

The screenshot shows the 'Easy Product Finder' software interface. The main window displays the 'Application/Preview' section with a 3D model of a ventilation grille. The 'Product selection' section shows the selected product 'AF-0-AG' and its specifications: Volume flow [l/s] = 130 (110-390), Spacing/Distance [m] (L=5.00, H=6.00, B=6.00), and Temperature difference [K] = -4.0 (-12.0-4.0). The 'Acoustic results' section shows values for v_{ar} , ΔL , L , v_{max} , $P_{1,2}$, $v_{a,critical}$, and $v_{a,r}$. The 'Acoustic results (100% = fully open)' table shows damper settings for 100%, 30%, and 25% extraction rates.

Damper settings	100%	30%	25%
Δp	4	9	19 Pa
LNAC	<13	24	34 dB(A)
LNAC	<9	19	29

Order code

AF as a single grille



1 Type

AF Single grille

2 Blade construction style

0 0° blades (straight)
15 15° blades (angled)

3 Attachments

A Without (grille face only)
AG* Damper unit, opposed action blades
D* Air direction control, blades installed at 90° to the front blades
DG* D combined with AG

4 Nominal size [mm]

L × H

5 Exposed surface

P2 RAL 9006:25%
P3 RAL 9010:20%
P6 Powder-coated RAL CLASSIC colour. Gloss level: 25%

* Damper assembly to be specified within plenum box (when supplied)

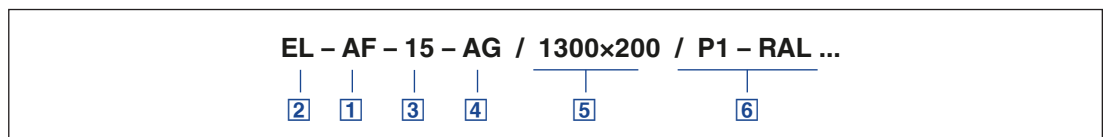
Order example

AF-0-AG/800×200/P2

Blade construction style	0°
Attachments	Damper unit, opposed action blades
Nominal size Exposed surface	800 × 200 mm Powdercoat, RAL9006:25% (grey)

Order code

AF, horizontal run section



1 Type

AF Horizontal run section

2 Section

EL End section
ER End section
M Middle section

3 Blade construction style

0 0° blades (straight)
15 15° blades (angled)

4 Attachments

A Without (grille face only)
AG* Damper unit, opposed action blades
D* Air direction control, blades installed at 90° to the front blades
DG* D combined with AG

5 Nominal size

E (end section) × H
M (middle section) × H

6 Exposed surface

P2 RAL 9006:25%
P3 RAL 9010:20%
P6 Powder-coated RAL CLASSIC colour. Gloss level: 25%

* Damper assembly to be specified within plenum box (when supplied)

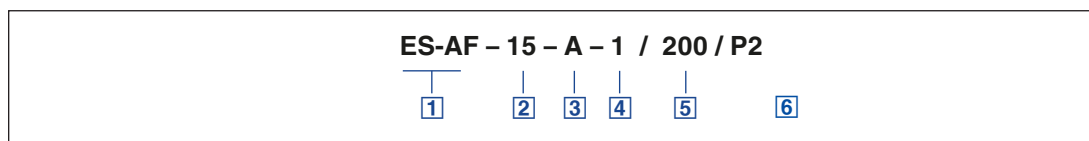
Order example

EL-AF-15/1300×200/P2

Section	End section
Blade construction style	15°
Attachments	None
Nominal size Exposed surface	1300 × 200 mm Powdercoat, RAL9006:25% (grey)

Useful additions

ES-AF corner section



1 Type

ES-AF 90° corner section

2 Blade construction style

0 0° blades (straight)
15 15° blades (angled)

3 Attachments

A Without (grille face only)

4 Airflow direction

Only for 15° blades
1 Outward
2 Inward

5 Nominal size [mm]

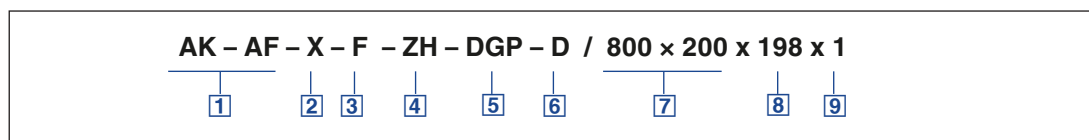
Nominal height H
75, 100, 125, 150, 175, 200

6 Exposed surface

P2 RAL 9006:25%
P3 RAL 9010:20%
P6 Powder-coated RAL CLASSIC colour.
Gloss level: 25%

Plenum box

AK-AF, plenum box



1 Type

AK-AF Plenum box to suit AF grille

2 Grille fixing

X Without holes

3 Plenum style

F Finite
M Linear

4 Connection type

ZH Horizontal (supply air)
AH Horizontal (extract air)
ZV Vertical (supply air)
AV Vertical (extract air)

5 Damper type

0 Without damper
M Perforated spigot damper
AGP Opposed blade VCD (fitted to plenum)
DP Deflection blades (fitted to plenum)
DGP Opposed blade VCD + deflection blades
(fitted to plenum)

6 Internal lining

0 No lining
D 12mm foam lining

7 Plenum nominal size [mm]

L x H

8 Spigot size [mm]

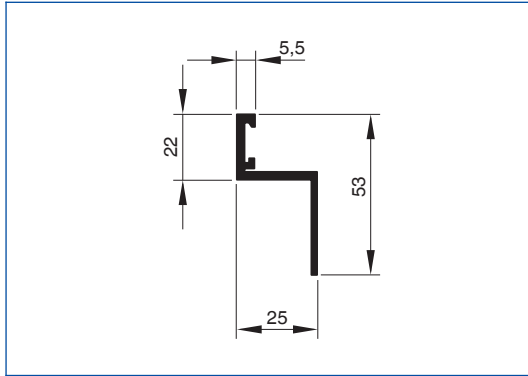
Ø98, Ø123, Ø138, Ø148, Ø158, Ø178,
Ø198, Ø222, Ø248, Ø278, Ø298, Ø313,
Ø348, Ø353, Ø398, Ø448*, Ø498*, Ø558*
Not in combination with ...-M, ...-MC

9 Spigot quantity

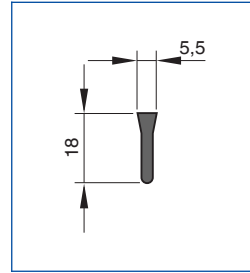
Qty 1...4

Front border and blade

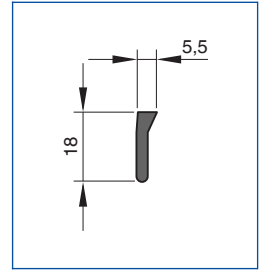
Front border, 25 mm



Blade *-0

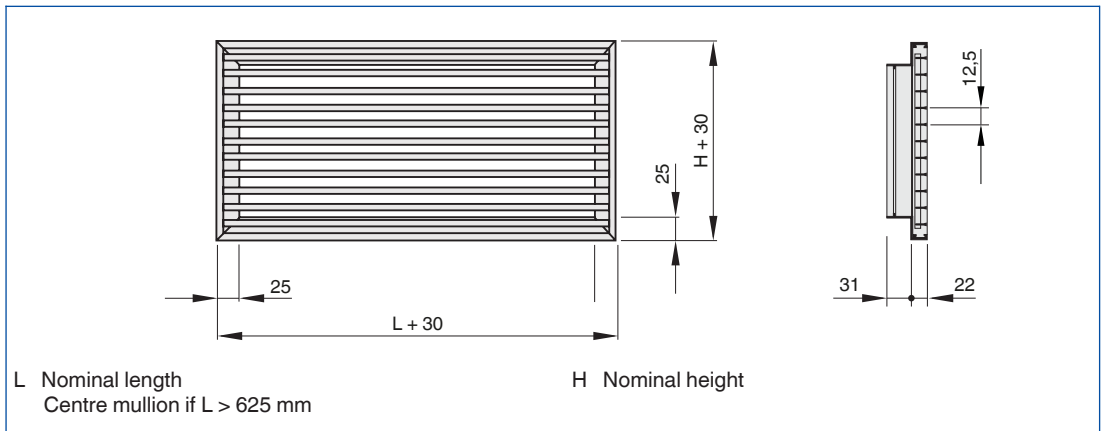


Blade *-15

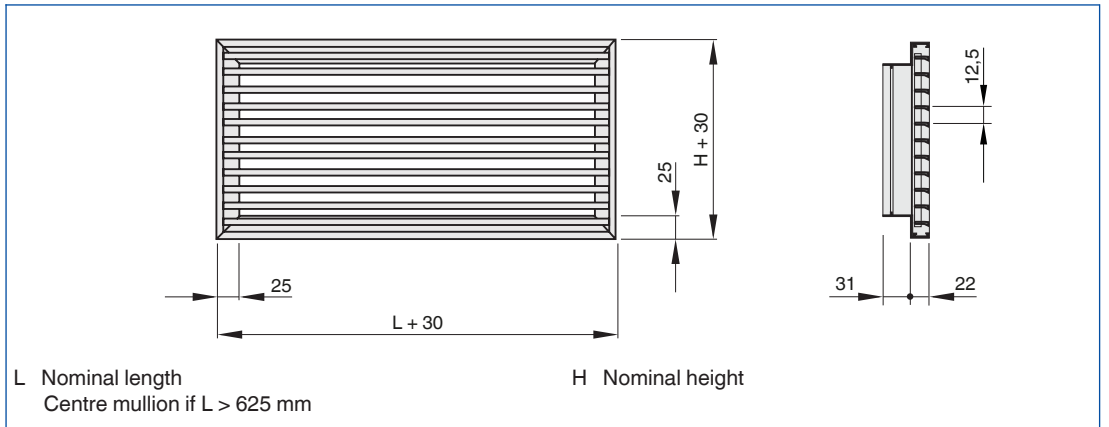


Single grille

AF-0



AF-15



Weights

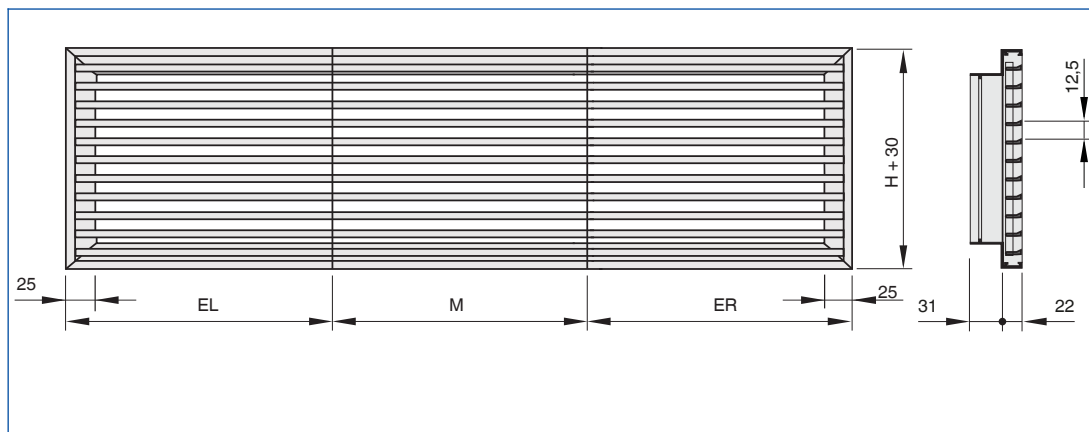
H	Single Grille	Horizontal Run	
		E	M
mm	m		
	kg/m	kg	
75	2.8	2.7	4.6
100	3.3	3.2	5.5
150	4.4	4.3	7.3
200	5.5	5.4	9.1
250	6.5	6.5	10.9
300	7.6	7.6	12.7

Weights apply to sections without attachments

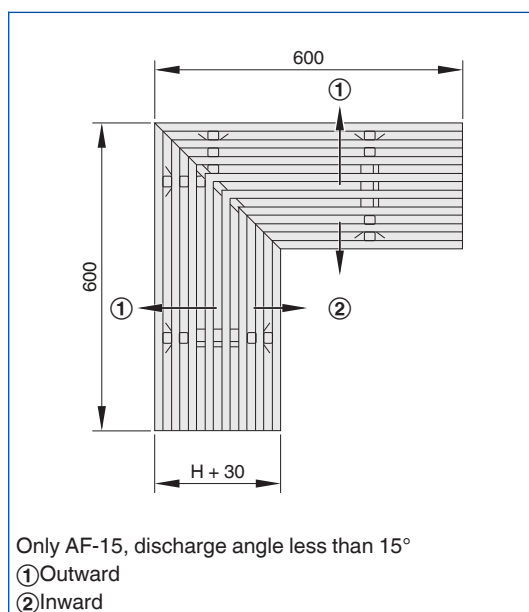
Horizontal run section

AF, Horizontal run section

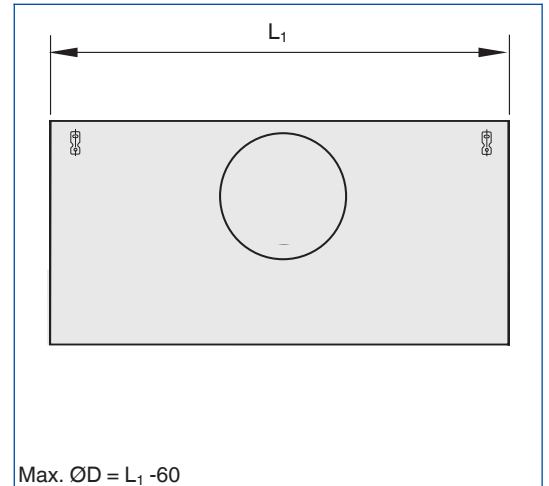
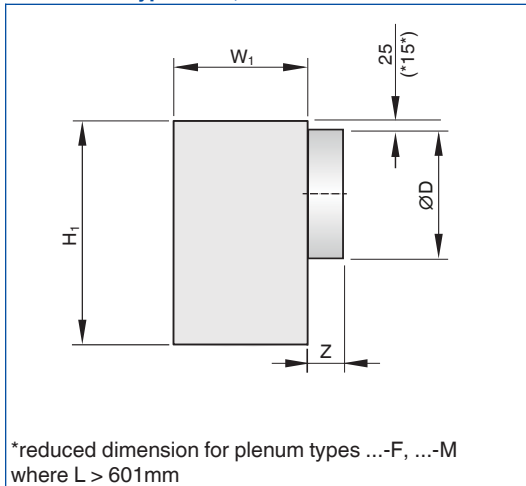
EL, ER: End section
M: Middle section
H: Nominal height



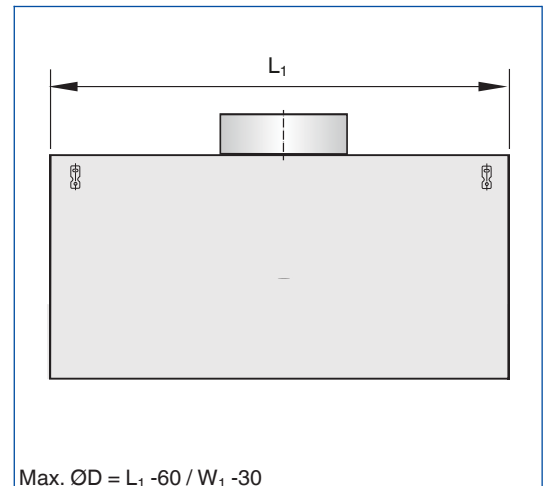
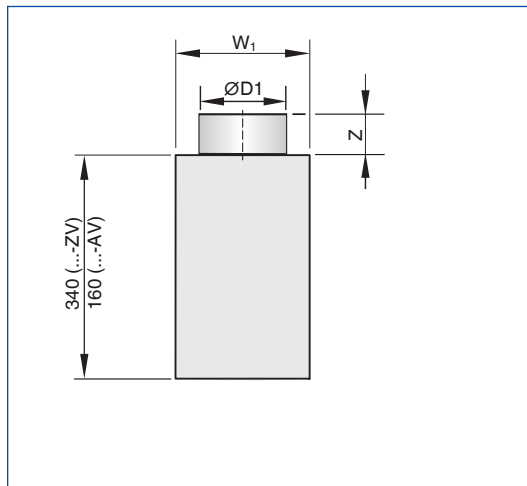
90° corner section



Plenum Box AK-AF Connection type ...-ZH, ...-AH



Connection type ...-ZV, ...-AV



Dimensions

H_1 dimension excludes grille border

Overall plenum & grille assembled height;
 H_1 + grille border depth

Grille Fixing	Dimensions					
	Plenum Type	L_1	H_1	ØD1	W_1	Z
...-X	F	$L - 12$	$\text{ØD} + 150$	$L / H - 40$	$H - 12$	$40 (*75/100)$
	M	$L - 5$	$\text{ØD} + 150$	$H - 40$	$H - 12$	$40 (*75/100)$

Spigot Z
 ...-0 (without spigot damper): 40mm
 ...-M / ...-MC ($\text{ØD} < 160$): 75mm
 ($\text{ØD} > 160$): 100mm

Plenum type F: Finite (nominal plenum length = nominal grille length)
 M: Linear (nominal plenum length < nominal grille length)

Standard text

This specification text describes the general properties of the product. Texts for variants can be generated with our Easy Product Finder design programme.

Ventilation grilles, rectangular, made of aluminium, for supply and extract air. Preferably for floor installation. Ready-to-install component which consists of a border and fixed longitudinal blades. Spring clip fixing of blades within border offers removable core. Sound power level of the air-regenerated noise measured according to EN ISO 5135.

Special characteristics

- Blades for straight (0°) or angled (15°) air discharge to meet different local requirements
- Spring clip fixing

Materials and surfaces

- Border and blades made of aluminium
- P2: Border and blades powder-coated, RAL9006:25%
- P3: Border and blades powder-coated, RAL9010:20%
- P6: Powder-coated RAL CLASSIC colour. Gloss level: 25%

Technical data

- Nominal sizes: 300 × 75 to 1800 × 300 mm
- Horizontal run section, height: 75 – 300 mm
- Minimum volume flow rate (supply air): 17 – 525 l/s or 61 – 1890 m³/h
- Maximum volume flow rate (supply air), at L_{WA} max. 40 dB(A) without attachments: 75 – 1350 l/s or 270 – 4860 m³/hr
- Supply air to room air temperature difference: –12 to +4 K

Sizing data

- \dot{V} _____ [l/s]
- Δp_t _____ [Pa]
- L_{WA} Air-regenerated noise _____ [dB(A)]

Order options

1 Type

AF Single grille

2 Blade construction style

0 0° blades (straight)
15 15° blades (angled)

3 Attachments

A Without (grille face only)
AG* Damper unit, opposed action blades
D* Air direction control, blades installed at 90° to the front blades
DG* D combined with AG

* Damper assembly to be specified within plenum box (when supplied)

4 Nominal size [mm]

L × H

5 Exposed surface

P2 RAL 9006:25%
P3 RAL 9010:20%
P6 Powder-coated RAL CLASSIC colour. Gloss level: 25%

Horizontal run section

1 Type

AF Horizontal run section

2 Section

EL End section
ER End section
M Middle section

3 Blade construction style

0 0° blades (straight)
15 15° blades (angled)

4 Attachments

A Without (grille face only)
AG* Damper unit, opposed action blades
D* Air direction control, blades installed at 90° to the front blades
DG* D combined with AG

5 Nominal size

E (end section) × H
M (middle section) × H

6 Exposed surface

P2 RAL 9006:25%
P3 RAL 9010:20%
P6 Powder-coated RAL CLASSIC colour. Gloss level: 25%

* Damper assembly to be specified within plenum box (when supplied)

Plenum box

1 Type

AK-AF Plenum box to suit AF grille

2 Grille fixing

X Without holes

3 Plenum style

F Finite

M Linear

4 Connection type

ZH Horizontal (supply air)

AH Horizontal (extract air)

ZV Vertical (supply air)

AV Vertical (extract air)

5 Damper type

0 Without damper

M Perforated spigot damper

AGP Opposed blade VCD (fitted to plenum)

DP Deflection blades (fitted to plenum)

DGP Opposed blade VCD + deflection blades
(fitted to plenum)

6 Internal lining

0 No lining

D 12mm foam lining

7 Plenum nominal size [mm]

L × H

8 Spigot size [mm]

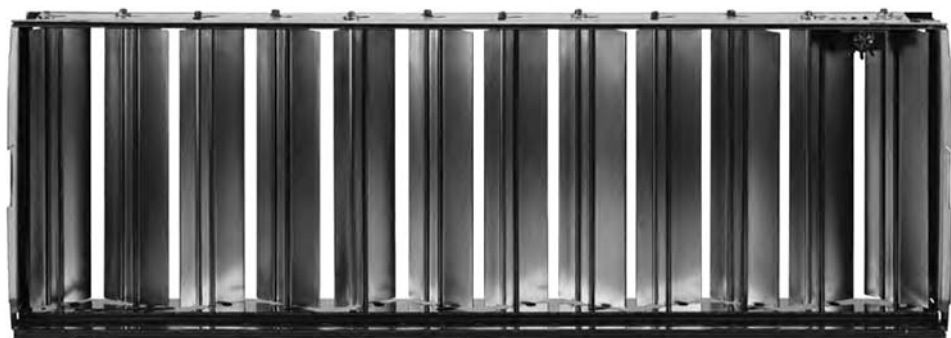
Ø98, Ø123, Ø138, Ø148, Ø158, Ø178,
Ø198, Ø222, Ø248, Ø278, Ø298, Ø313,
Ø348, Ø353, Ø398, Ø448*, Ø498*, Ø558*
Not in combination with ...-M, ...-MC

9 Spigot quantity

Qty 1...4

Attachments

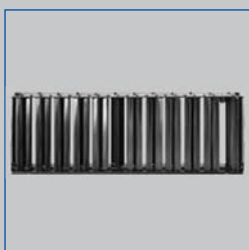
Types -AG, -D, -DG



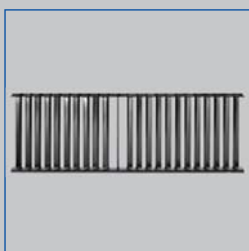
Attachments for ventilation grilles, made of sheet steel, for volume flow rate balancing and air direction control

Attachments with manually adjustable blades

- Volume flow rate balancing
- Air direction control



DG



D



AG

Type		Page
-AG, -D, -DG	General information	AF – 15
	Special information – -AG	AF – 16
	Special information – -D	AF – 18
	Special information – -DG	AF – 20

Description

Application

- Attachments for ventilation grilles offer additional functions
- For volume flow rate balancing and/or for air direction control
- Damper units simplify the volume flow rate balancing required for commissioning, for supply air and extract air
- Air control blades, which are fitted at 90° to the front blades, allow for other airflow directions, for supply air
- Ventilation grille need not be removed for adjustment

Variants

- AG: Damper unit with opposed action blades
- D: Air direction control
- DG: Damper unit with opposed action blades and blades for air direction control

Maintenance

- Maintenance-free as construction and materials are not subject to wear
- Inspection and cleaning to VDI 6022

Any accessories are defined with the order code of the ventilation grille.

Attachments for ventilation grilles

Type of ventilation grille	Attachment		
	-AG	-D	-DG
	Damper unit	Air direction control	Damper unit Air direction control
Installation into walls, sills or rectangular ducts			
AT	●	●	●
VAT	●	●	●
AH	●	●	●
AHR	●	●	●
WAP	●	●	●
WAPR	●	●	●
AF	●	●	●
AFW	●	●	●
AFH	●	●	●

Description



AG

- AG /

Order code detail

Application

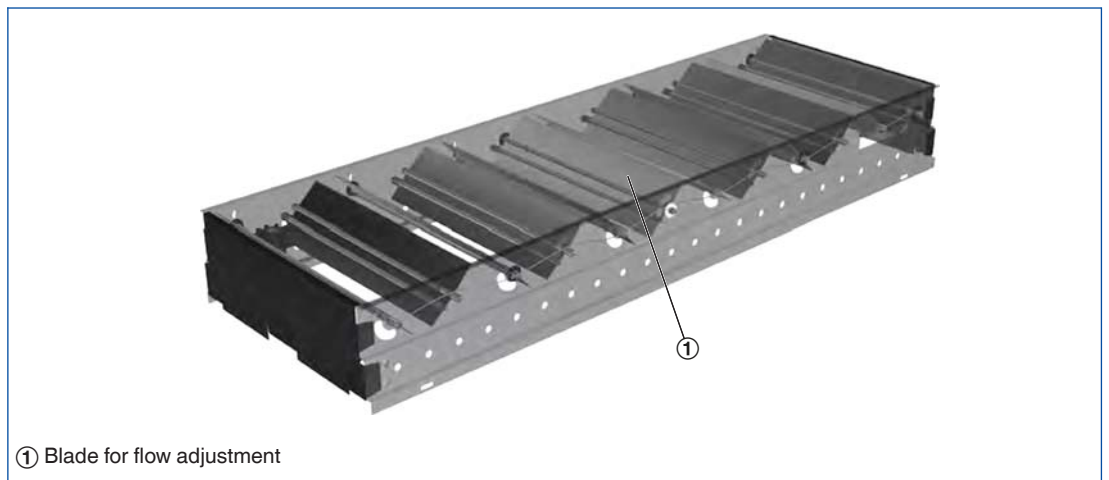
- For volume flow rate balancing
- Damper units simplify the volume flow rate balancing required for commissioning, for supply air and extract air
- Ventilation grille need not be removed for adjustment

Parts and characteristics

- Opposed action blades
- Can be adjusted and set with screws

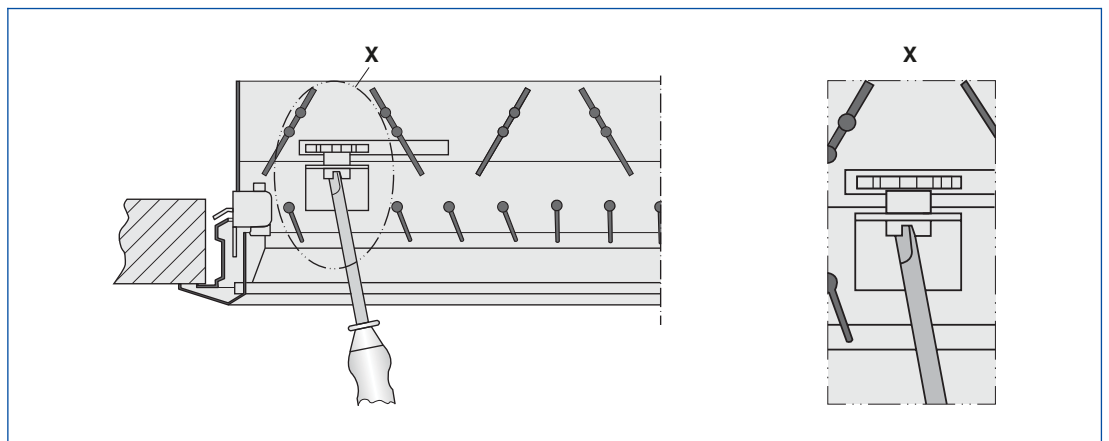
Function

Schematic illustration of -AG



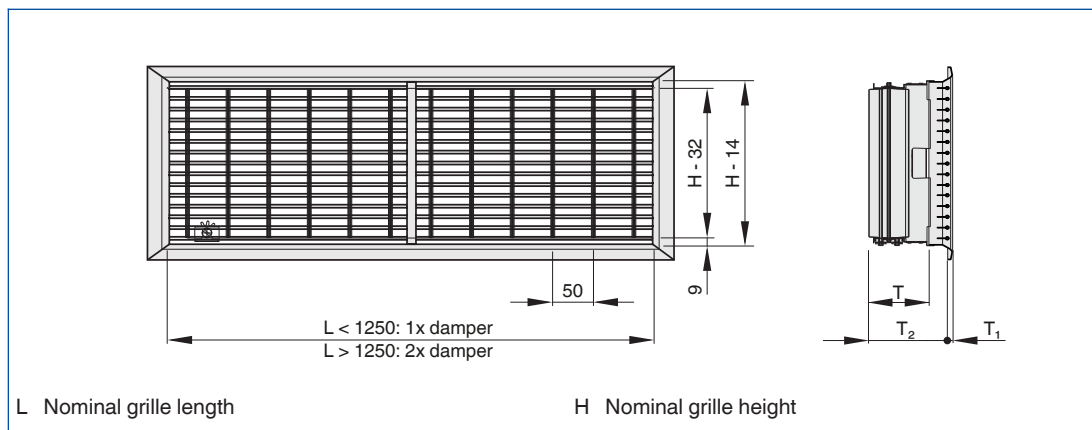
Commissioning

Volume flow rate balancing -*G



Attachments -AG, -DG

-AG



Dimensions

Product type	T	T ₁	T ₂
	mm		
AT	70	11	92
VAT	70	11	92
AH	70	8	92
AHR	70	8	92
WAP	70	8	92
WAPR	70	8	92
AF	70	0	123
AFH	70	0	123
AFW	70	0	123

Description



D



Order code detail

Application

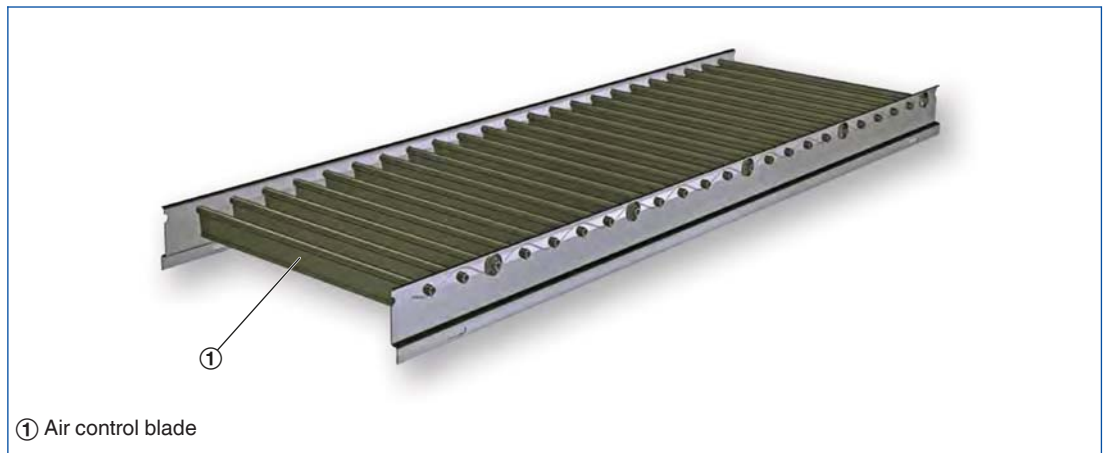
- For air direction control, for supply air
- Air control blades, which are fitted at 90° to the front blades, allow for other airflow directions
- Ventilation grille need not be removed for adjustment

Parts and characteristics

- Individually adjustable blades

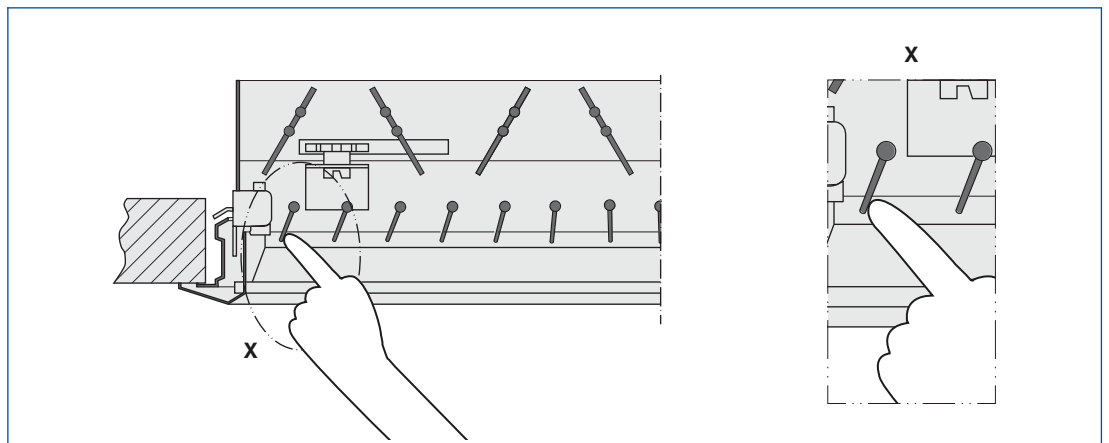
Function

Schematic illustration of -D



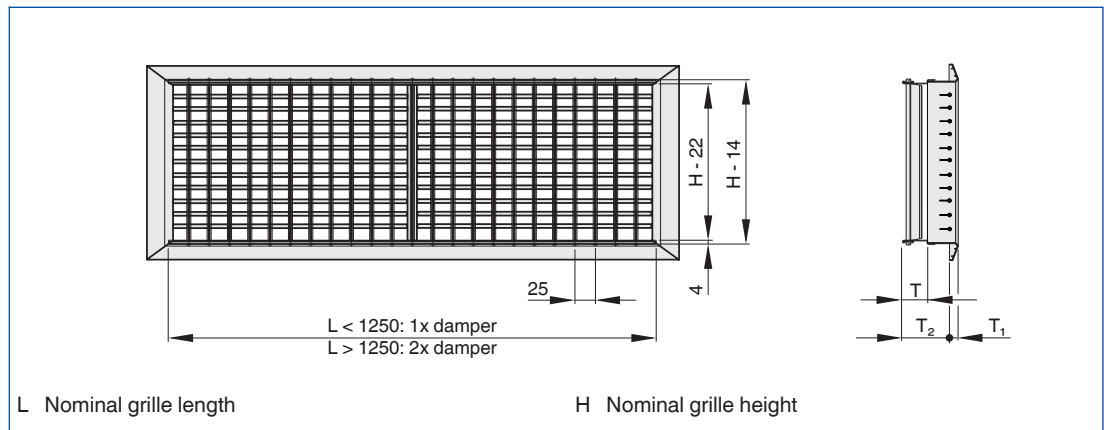
Commissioning

Air direction control -D



Attachments -D, -DG

-D



Dimensions

Product type	T	T ₁	T ₂
	mm		
AT	28	11	50
VAT	28	11	50
AH	28	8	50
AHR	28	8	50
WAP	28	8	50
WAPR	28	8	50
AF	28	0	81
AFH	28	0	81
AFW	28	0	81

Description



DG

- DG /

Order code detail

Application

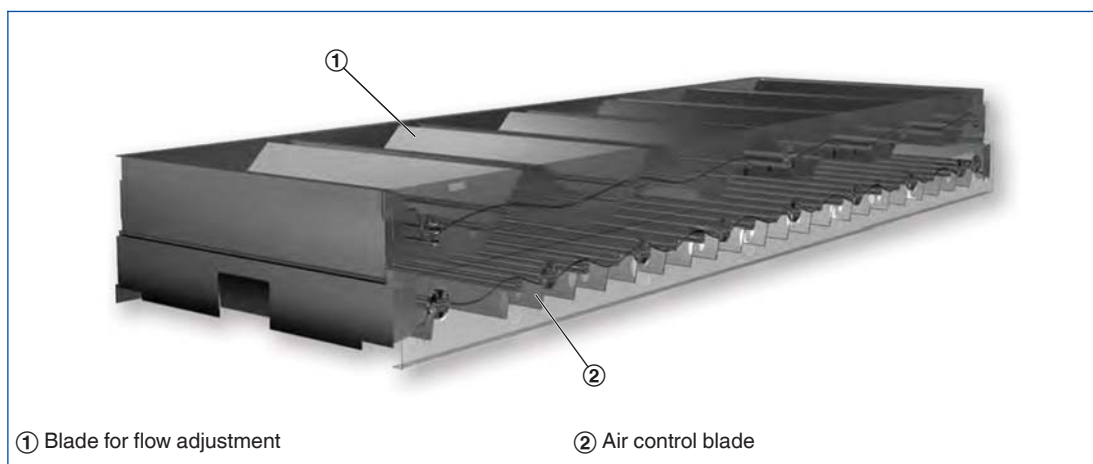
- For volume flow rate balancing and additionally for air direction control, for supply air
- Damper units simplify the volume flow rate balancing required for commissioning
- Air control blades, which are fitted at 90° to the front blades, allow for other airflow directions
- Ventilation grille need not be removed for adjustment

Parts and characteristics

- Volume flow rate balancing: opposed action blades
- Air direction control: adjustable air control blades
- Can be adjusted and set with screws

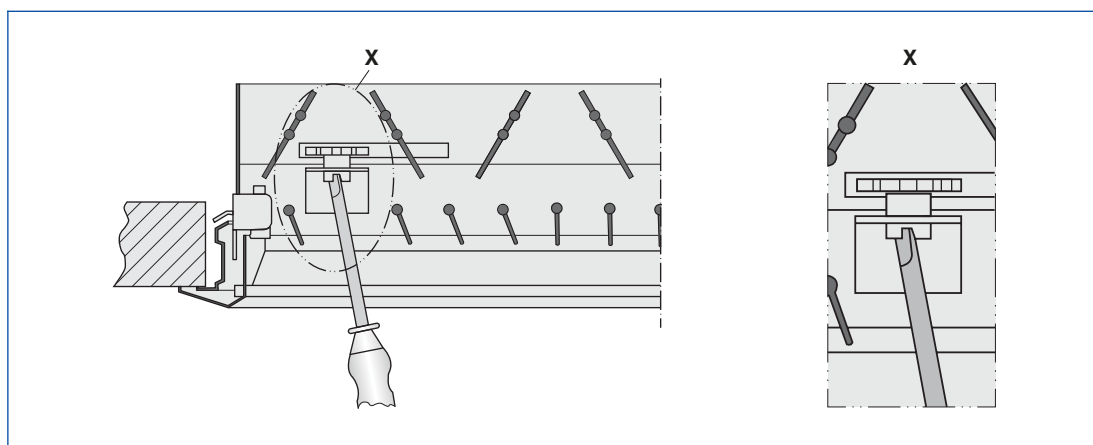
Function

Schematic illustration of -DG



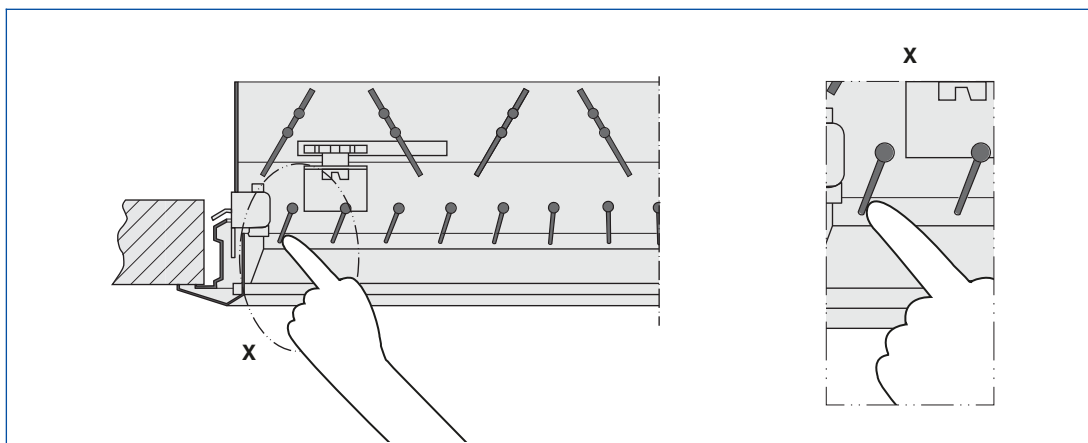
Commissioning

Volume flow rate balancing -*G



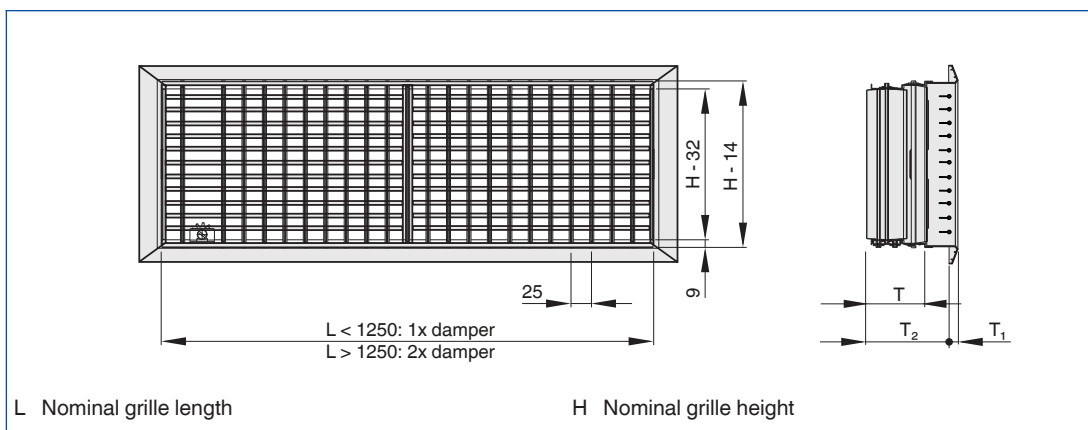
Attachments -AG, -DG

Air direction control -D



Attachments -D, -DG

-DG



Dimensions

Product type	T	T ₁	T ₂
	mm		
AT	70	11	92
VAT	70	11	92
AH	70	8	92
AHR	70	8	92
WAP	70	8	92
WAPR	70	8	92
AF	70	0	123
AFH	70	0	123
AFW	70	0	123