

Ventilation grilles for installation into walls, sills or rectangular ducts

Type X-GRILLE Basic



Ventilation grilles with flat border construction – also for continuous horizontal runs

The new X-GRILLE Basic ventilation grilles with their gently sloped border combine function with an attractive design; they can be installed in walls, sills or rectangular ducts.

- Nominal sizes 225 × 125 – 1225 × 525 mm
- Volume flow rate range 19 – 2651 l/s or 68 – 9544 m³/h
- Energy-efficient and acoustically optimised air discharge
- Symmetric blade profile for two-way entry flow
- Uniform look and easy adjustment due to concealed blade linkage
- Gently sloped border construction, almost completely flush with the installation surface
- Linear look, ideal for continuous horizontal runs
- Use of existing rear assemblies
- Easy replacement of existing grilles due to standard installation dimensions

Optional equipment and accessories

- Installation subframe
- Attachments for volume flow rate balancing and air direction control
- Concealed screw fixing
- Spring clip fixing



Flat border construction

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Application

Application

- Ventilation grille of Type X-GRILLE Basic as supply air or extract air variant for comfort zones and industrial zones
- Attractive design element for building owners and architects with demanding aesthetic requirements
- Directed supply air discharge for mixed flow ventilation
- Blades are adjustable to meet different local requirements
- For variable and constant volume flows
- For supply air to room air temperature differences from –12 to +4 K
- For installation in walls, sills and rectangular ducts

Special characteristics

- Symmetric blade profile for two-way entry flow

- Concealed blade linkage for adjusting the blades simultaneously
- Gently sloped border construction, almost completely flush with the installation surface
- Linear look, ideal for continuous horizontal runs

Nominal sizes

Single grille

- Nominal length: 225, 325, 425, 525, 625, 825, 1025, 1225 mm
- Nominal height: 125, 225, 325, 425, 525 mm

Horizontal run section

- Nominal length of end section: 950 – 2025 mm
- Nominal length of middle section: 2000 mm
- Nominal height: 125, 225, 325 mm

Other dimensions upon request

Description**Variants**

- Single grille
- Horizontal run section

Fixing

- VS: Concealed screw fixing
 - KF: Spring clip fixing
- VS, KF only with installation subframe

Parts and characteristics

- Gently sloped border
- Horizontal blades with concealed linkage to adjust blades simultaneously
- Vertical centre mullion for nominal lengths over 625 mm
- Concealed screw fixing and spring clip fixing, optional

Attachments

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

Accessories

- Installation subframe: For the fast and simple installation of ventilation grilles

Construction features

- Only small clearance between blades and border
- Centrally supported blades

Materials and surfaces

- Border made of galvanised sheet steel
- Blades made of aluminium
- Linkage and end pieces for blades made of highly temperature resistant special plastic, flame retardant to UL 94, V-0
- Border and blades powder-coated RAL 9010, pure white
- P1: Powder-coated, RAL CLASSIC colour

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

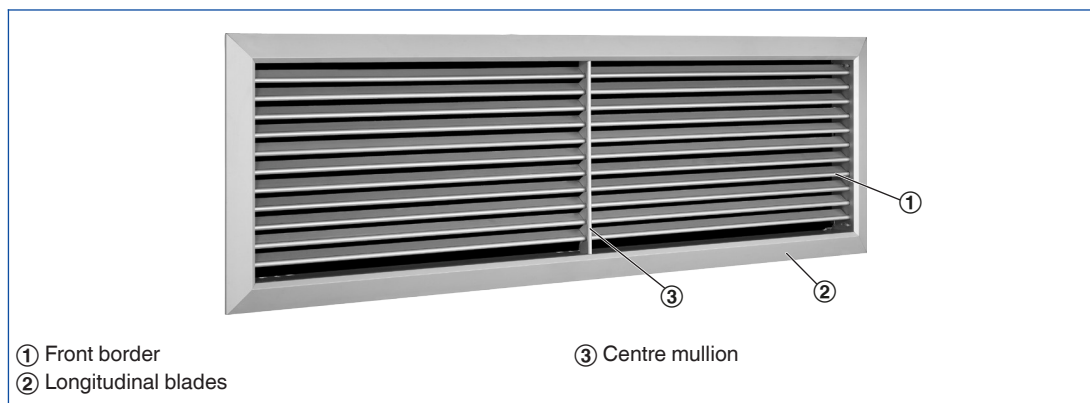
Functional description

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. 0.2 m/s, is called throw distance. The supply air jet from wall grilles that are installed near the ceiling

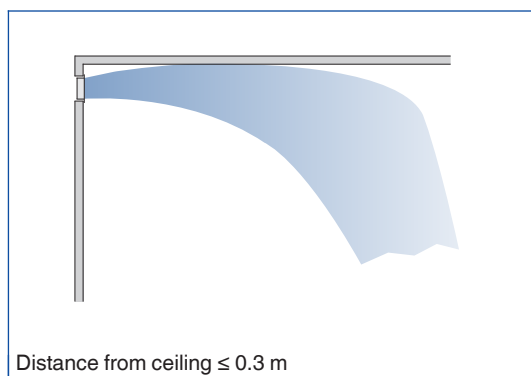
achieves a larger throw distance than a free jet (from a grille that is not installed near the ceiling). Single grilles, groups of grilles and continuous horizontal runs all achieve different throw distances.

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.

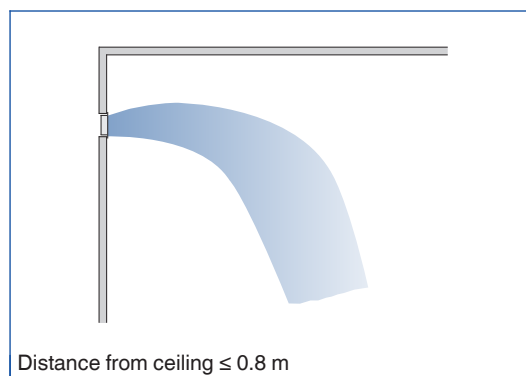
Schematic illustration of a ventilation grille with longitudinal blades



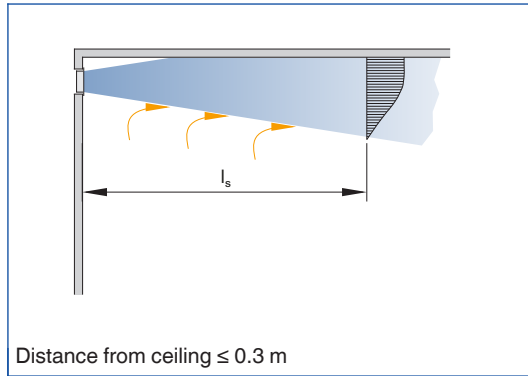
Air pattern in cooling mode, with ceiling effect, sectional view



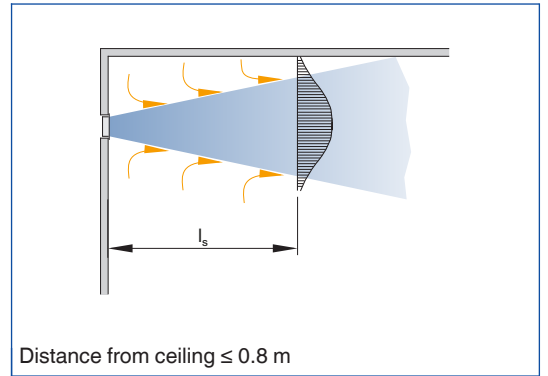
Air pattern in cooling mode, without ceiling effect, sectional view



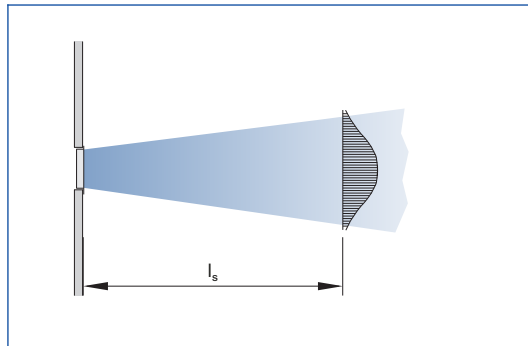
Air pattern with ceiling effect, sectional view



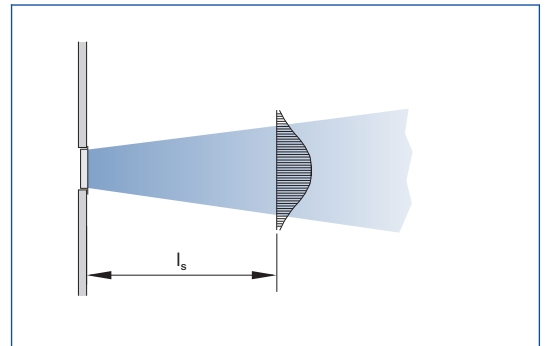
Air pattern without ceiling effect, sectional view



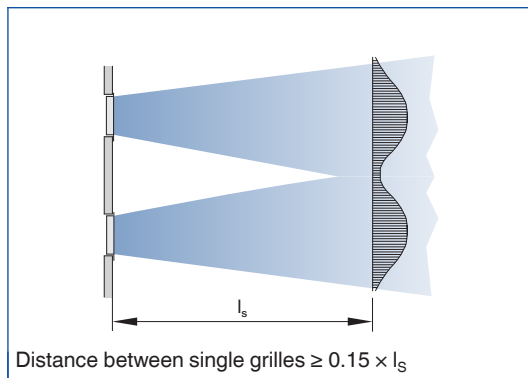
Air pattern with ceiling effect, top view



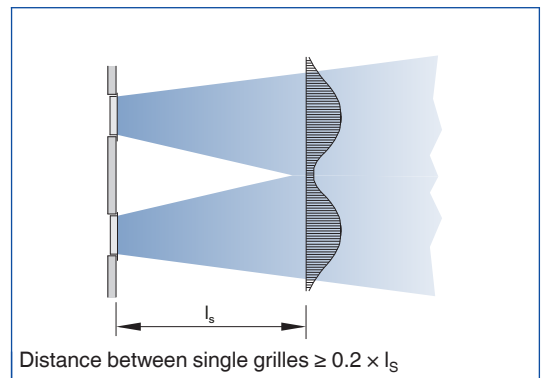
Air pattern without ceiling effect, top view



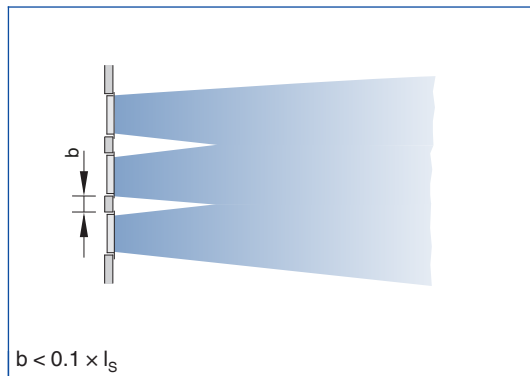
Air pattern with ceiling effect, group of grilles, top view



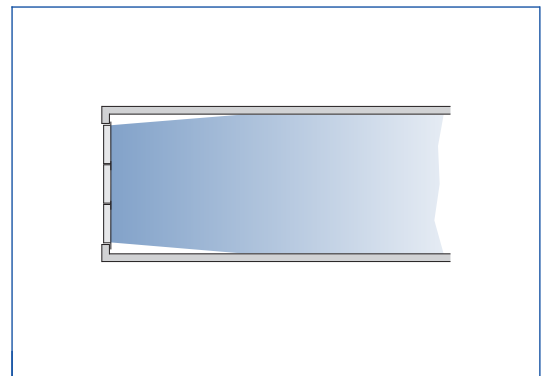
Air pattern without ceiling effect, group of grilles, top view



Air pattern, group of grilles, top view



Air pattern, continuous horizontal run, top view



Several single grilles arranged in a row and with not much distance between them have the same effect as a continuous horizontal run.

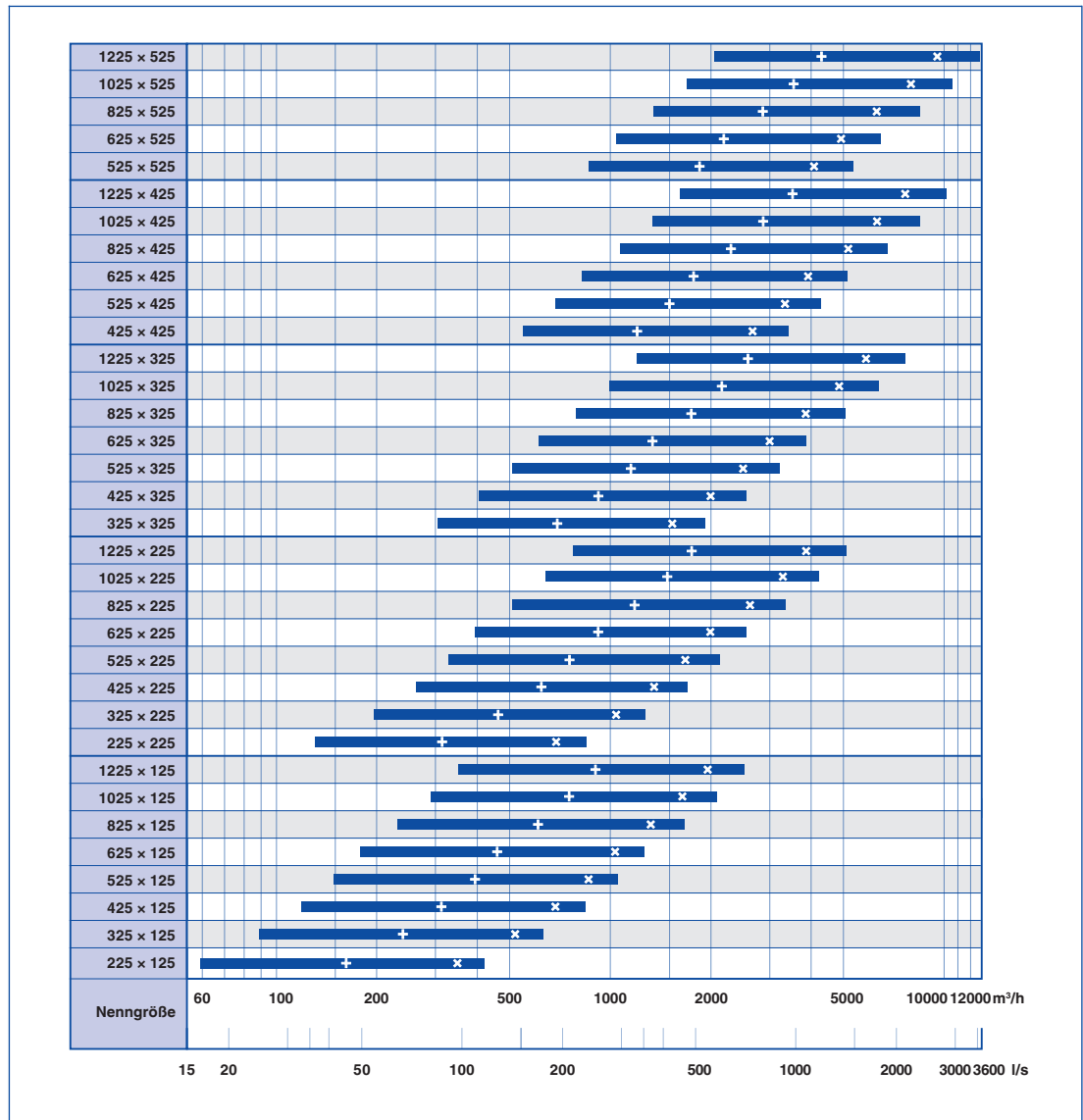
Nominal sizes	225 × 125 to 1225 × 525 mm
Horizontal run section	H: 125, 225, 325 mm
Minimum volume flow rate	16 – 568 l/s or 58 – 2045 m ³ /h
Maximum volume flow rate, with L _{WA} max. 40 dB(A) without attachments	97 – 2651 l/s or 350 – 9544 m ³ /h
Supply air to room air temperature difference	-12 to +4 K

Volumen flow rates for single grille for supply air.

Geometric free area

H	L [mm]							
	225	325	425	525	625	825	1025	1225
	A_{geo} m ²							
mm								
125	0.013	0.019	0.026	0.032	0.037	0.051	0.064	0.077
225	0.025	0.038	0.051	0.064	0.073	0.103	0.129	0.155
325		0.057	0.077	0.096	0.109	0.154	0.193	0.232
425			0.102	0.128	0.146	0.206	0.258	0.310
525				0.160	0.182	0.257	0.322	0.387

X-GRILLE Cover, X-GRILLE Basic, volume flow rate ranges



x L_{WA} = 40 dB(A) with unrestricted airflow+ L_{WA} = 40 dB(A) with airflow restricted by 50 %

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 with gently sloped border, rectangular, for supply and extract air. Function combined with an appealing design. Gently sloped border. Preferably for wall and sill installation but also suitable for rectangular ducts. Ready-to-install component which consists of a border and symmetrically and aerodynamically profiled, horizontal blades with a concealed linkage that allows for adjusting the blades simultaneously.

Special characteristics

- Symmetric blade profile for two-way entry flow
- Concealed blade linkage for adjusting the blades simultaneously
- Gently sloped border construction, almost completely flush with the installation surface
- Linear look, ideal for continuous horizontal runs

Materials and surfaces

- Border made of galvanised sheet steel
- Blades made of aluminium
- Linkage and end pieces for blades made of highly temperature resistant special plastic, flame retardant to UL 94, V-0

- Border and blades powder-coated RAL 9010, pure white
- P1: Powder-coated, RAL CLASSIC colour

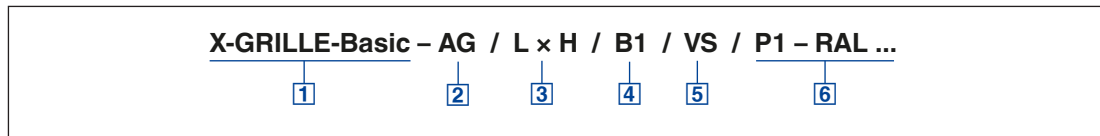
Technical data

- Nominal sizes: 225 × 125 to 1225 × 525 mm
- Horizontal run section, height: 125, 225, 325 mm
- Minimum volume flow rate (supply air): 16 – 568 l/s or 58 – 2045 m³/h
- Maximum volume flow rate (supply air), at L_{WA} max. 40 dB(A) without attachments: 97 – 2651 l/s or 350 – 9544 m³/h
- Supply air to room air temperature difference: -12 to +4 K

Sizing data

- \dot{V} _____
[m³/h]
- Δp_t _____
[Pa]
- Air-regenerated noise
- L_{WA} _____
[dB(A)]

X-GRILLE Basic as a single grille

**1** Type**X-GRILLE-Basic** Single grille**2** Attachments

- A** Without (grille face only)
AG Damper unit, opposed action blades
AS Hit and miss damper
D Air direction control, blades installed at 90° to the front blades, independently adjustable
DG D combined with AG

3 Nominal size [mm]

L × H

4 Installation subframeVS, KF only with installation subframe
No entry: none**B1** With**Order example: X-GRILLE-Basic-AG/525×225/B1/VS/P1-RAL 9016**

Attachments	Damper unit, opposed action blades
Nominal size	525 × 225 mm
Installation subframe	With installation subframe
Fixing	Concealed screw fixing
Surface	RAL 9016, traffic white, gloss level 70 %

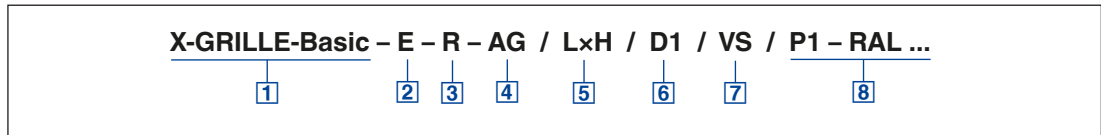
5 Fixing

- VS** Concealed screw fixing
KF Spring clip fixing
KB Without fixing material
 VS, KF only with installation subframe

6 Surface

- No entry: powder-coated RAL 9010, pure white
P1 Powder-coated, RAL ... CLASSIC
- Gloss level
 RAL 9010 50 %
 RAL 9006 30 %
 All other RAL colours 70 %

X-GRILLE Basic for continuous horizontal runs



1 Type

X-GRILLE-Basic Horizontal run section

2 Section

- E** End section
- M** Middle section

3 End section

- Specify only for end section
- R** Right end section
- L** Left end section

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, independently adjustable
- DG** D combined with AG

5 Nominal size [mm]

- L x H
- Length
- Middle section: 2000 mm
- End section: 950 – 2025 mm
- Height: 125, 225, 325

Order example: X-Grille-Basic-E-R-AG/1025x225/D1/VS

Section	End section
End section	Right end section
Attachments	Damper unit, opposed action blades
Nominal size	1025 x 225
Installation subframe	For end section
Fixing	Concealed screw fixing
Surface	RAL 9010, pure white, gloss level 50 %

6 Installation subframe

- No entry: none
- D1** For end section
- F1** For middle section

7 Fixing

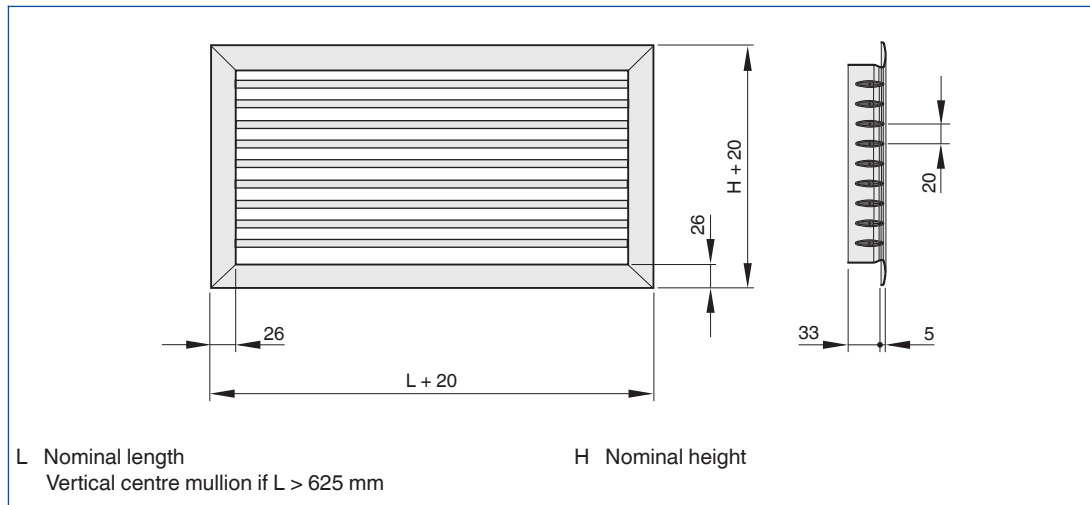
- VS** Concealed screw fixing
- KB** Without fixing material
- VS only with installation subframe

8 Surface

- No entry: powder-coated RAL 9010, pure white
- P1** Powder-coated, RAL ... CLASSIC
- Gloss level
- RAL 9010 50 %
- RAL 9006 30 %
- All other RAL colours 70 %

The weight table shows the available nominal sizes

X-GRILLE Basic, 26 mm wide front border

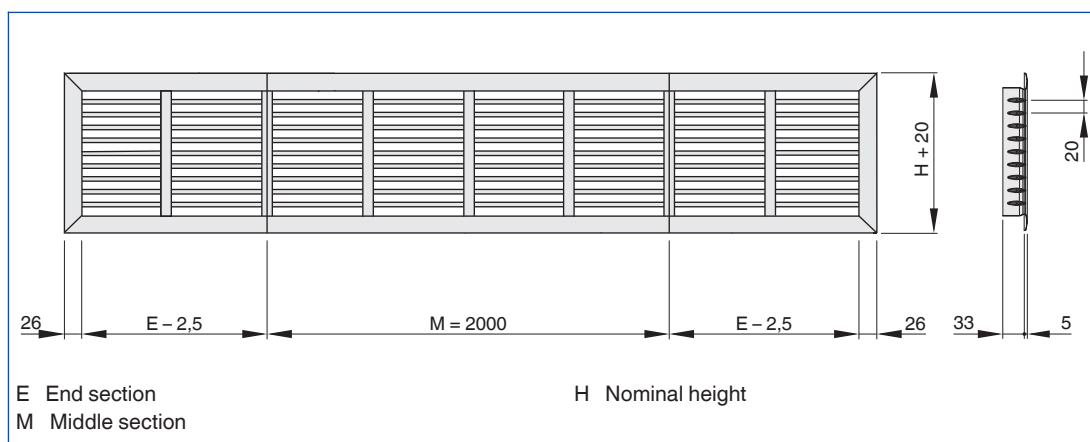


X-GRILLE Basic, single grille

H	L [mm]							
	225	325	425	525	625	825	1025	1225
	m							
mm	kg							
125	0.5	0.6	0.8	0.9	1.1	1.4	1.7	2.0
225	0.8	1.0	1.2	1.5	1.7	2.2	2.7	3.1
325		1.4	1.7	2.0	2.3	3.0	3.7	4.3
425			2.2	2.6	3.0	3.9	4.7	5.5
525				3.1	3.6	4.8	5.7	6.7

Weights apply to ventilation grilles without attachments

X-GRILLE Basic for continuous horizontal runs



X-GRILLE Basic for continuous horizontal runs

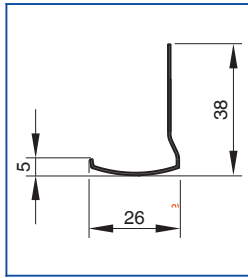
H	Section	
	E	M
mm	kg/m	kg
125	1.6	3.2
225	2.6	5.2
325	3.6	7.2

Middle section M: 2000 mm

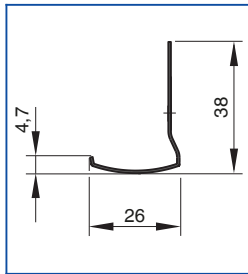
End section E: 950 – 2025 mm in increments of 1 mm

Weights apply to sections without attachments

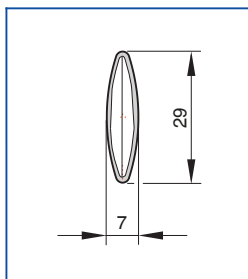
**Front border –
longitudinal section
(L), 28 mm**



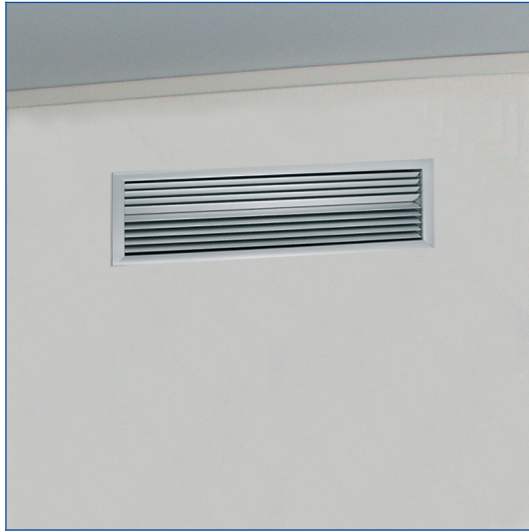
**Front border –
transverse section
(H), 28 mm**



X-GRILLE blade



Wall installation



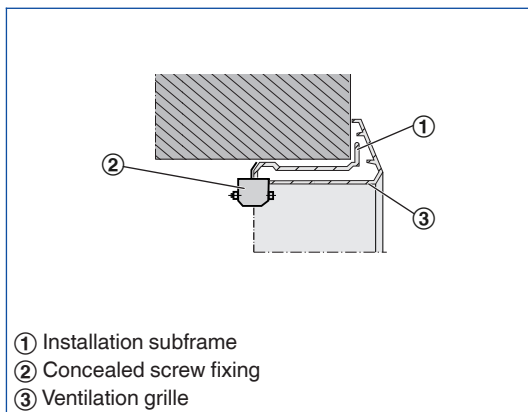
Nominal length up to 625 mm: without vertical centre mullion

Installation and commissioning

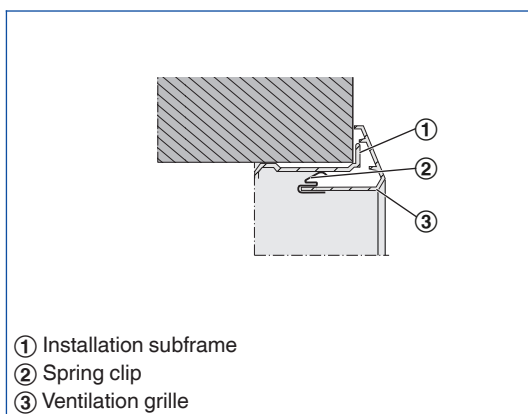
- Installation preferably in walls, sills and rectangular ducts
- Installation with installation subframe is recommended

These are only schematic diagrams to illustrate installation details.

Ventilation grille with concealed screw fixing



Ventilation grille with spring clip fixing



Volume flow rate balancing

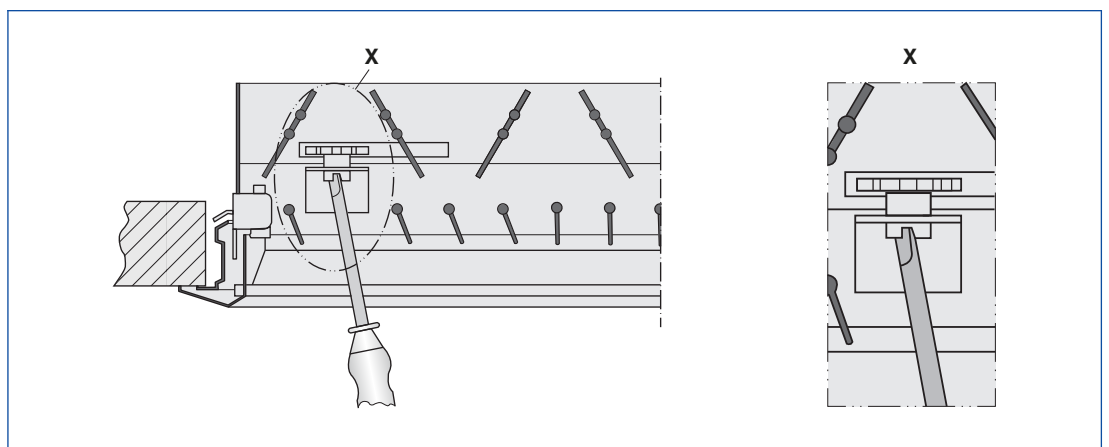
When several ventilation grilles are installed on the same duct, it may be necessary to balance the volume flow rates.

- AG: Damper unit with opposed action blades, adjustable, secured with a locking screw
- AS: Damper unit with hit and miss damper, adjustable, secured with a locking screw

Air pattern

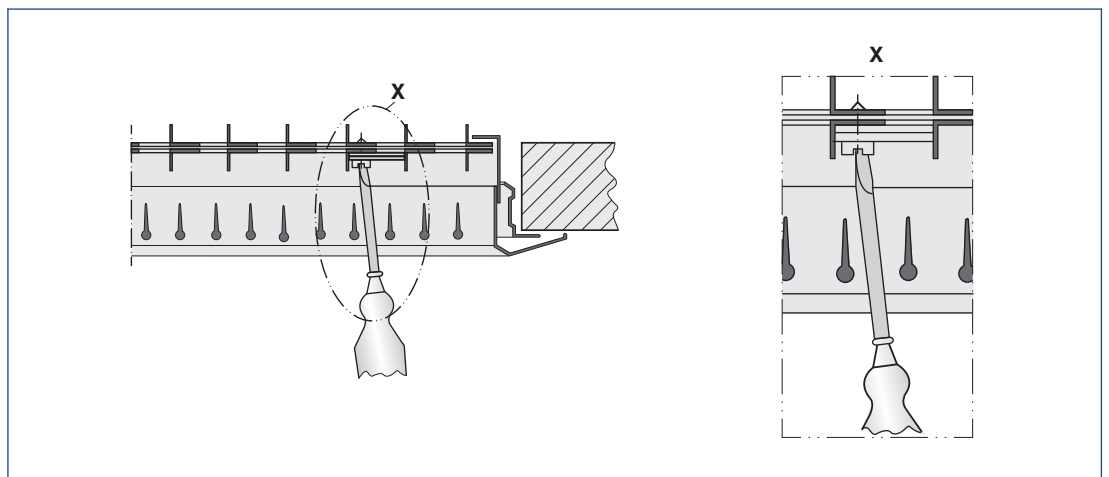
- Adjustable blades: Set the air control blades individually or together and depending on the local conditions
- D, DG: Air control blades, fitted at 90° to the front blades, can be adapted to the local conditions

Volume flow rate balancing -*G



Attachments -AG, -DG and Types AGW, DGW

Volume flow rate balancing -S



Attachments -AS, -KS, -RS and Type ASW

Principal dimensions

L [mm]

Nominal length of the ventilation grille

H [mm]

Nominal height of the ventilation grille

m [kg]

Weight

Nomenclature

L_{WA} [dB(A)]

Sound power level of the air-regenerated noise

\dot{V} [m³/h] and [l/s]

Volume flow rate

Δp_t [Pa]

Total differential pressure

l_s [m]

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