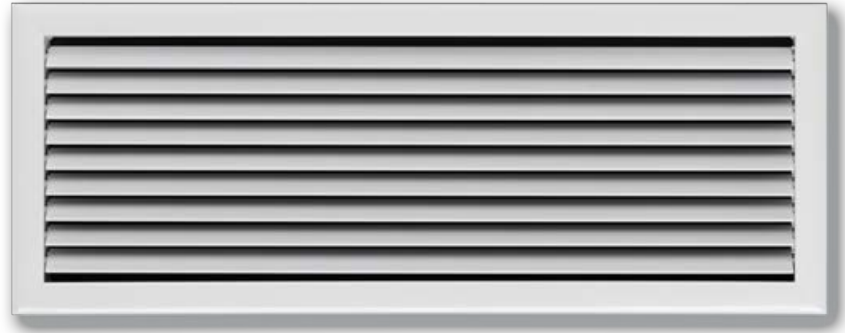




Flat border construction

Ventilation grilles

X-GRILLE Basic



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

The X-GRILLE Basic ventilation grilles with their gently sloped front border combine function with an attractive design; for installation in walls, sills or rectangular air ducts.

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

Optional equipment and accessories

- Installation subframe
- Attachments for volume flow balancing and air direction control
- Concealed screw fixing with and without installation subframe

General information	2	Dimensions	11
Function	3	Fixings	15
Technical data	6	Attachments	16
Quick sizing	7	Weights	18
Specification text	8	Product details	19
Order code	9	Nomenclature	22

General information

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

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 gap between blades and front border
- Symmetrically mounted blades

Material and surfaces

- Front border made of galvanised sheet steel
- Blades made of aluminium
- Linkage and end pieces of the blades made of special high-temperature resistant plastic, according to UL 94, V-0, flame-retardant
- Front border and blades powder-coated RAL 9010, pure white
- AG attachment: Frame made of sheet steel, blades made of aluminium
- AS and SAS attachment made of aluminium
- DG attachment made of sheet steel, black powder-coated
- P1: powder-coated, RAL CLASSIC colour

Standards and guidelines

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

Maintenance

- Low maintenance, as construction and materials are not subject to wear and tear
- Inspection and cleaning according to VDI 6022

Function

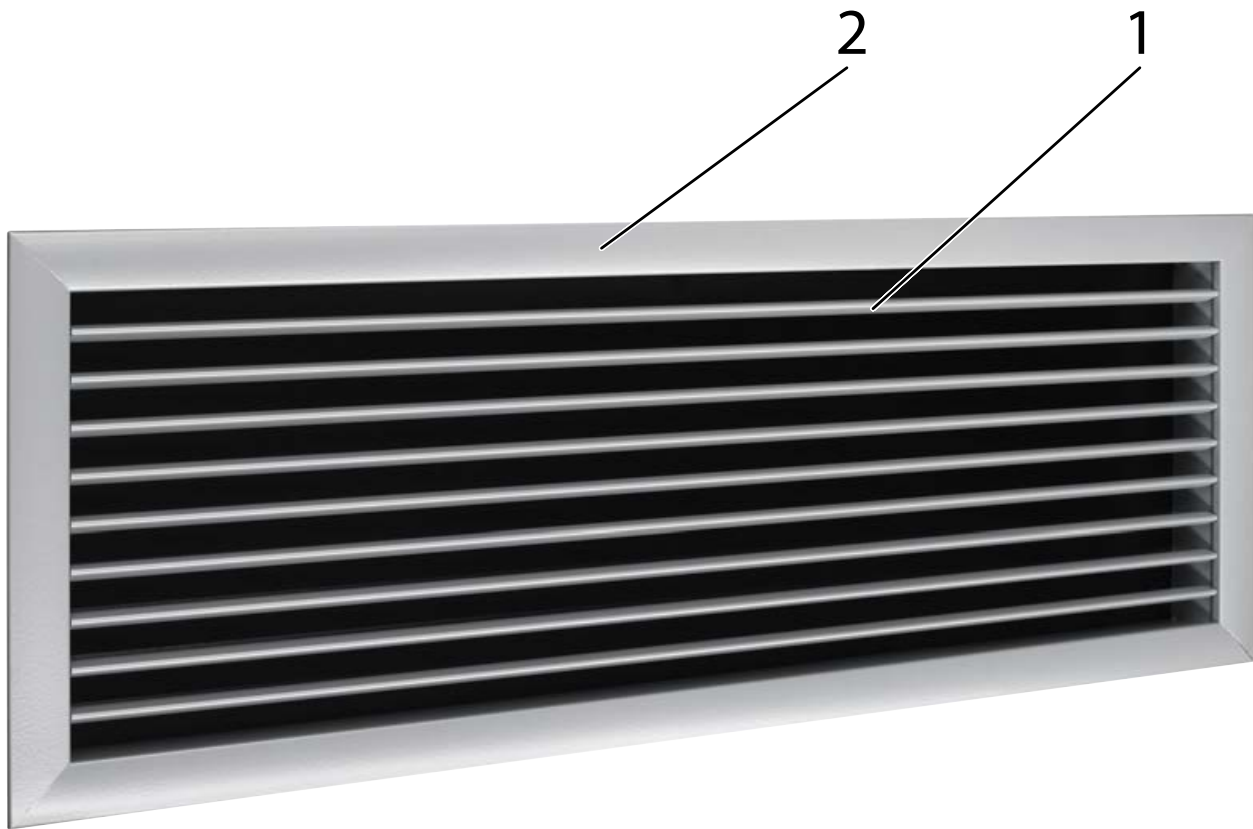
Ventilation grilles are air terminal devices for the supply air and extract air of ventilation and air conditioning systems. They direct the supply airflow into the room. Ventilation grilles with adjustable blades allow for adapting the discharge direction to the local conditions. The result is a mixed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

Due to induction, the airflow velocity of the supply air flow decreases with increasing distance from the ventilation grille. The distance at which the airflow velocity reaches a certain defined value, e.g. 0.2 m/s, is called throw distance. Due to the ceiling effect, the supply airflow from wall grilles that are arranged close

to the ceiling achieves a greater throw distance than a comparable free jet (without ceiling effect). Single grilles, groups of grilles with certain spacing, and linear run sections all achieve different throw distances.

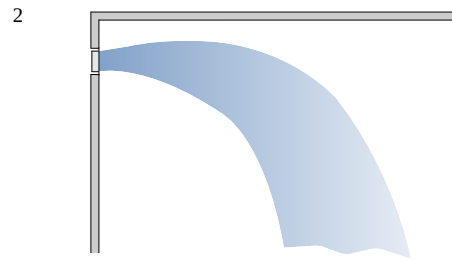
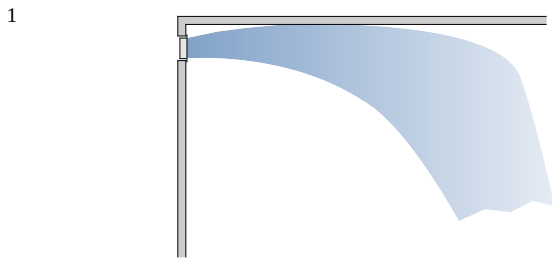
In cooling mode, it is necessary to consider the jet deflection towards the occupied zone, which increases as the supply air to room air temperature difference increases and the discharge velocity decreases. In heating mode, the supply air jet is deflected towards the ceiling. This has no negative effect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

Schematic illustration Ventilation grille with longitudinal blades



- 1 Front border
- 2 Longitudinal blades

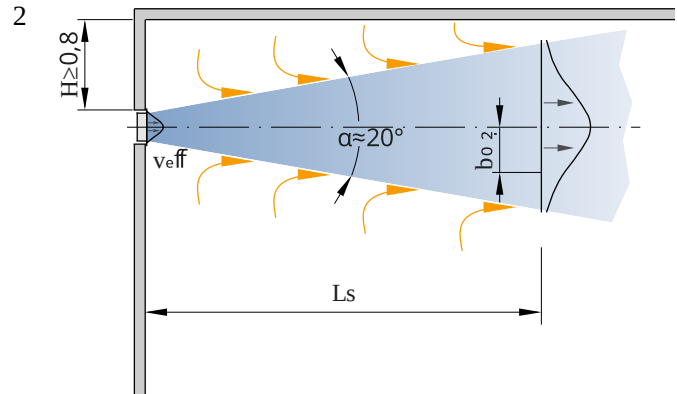
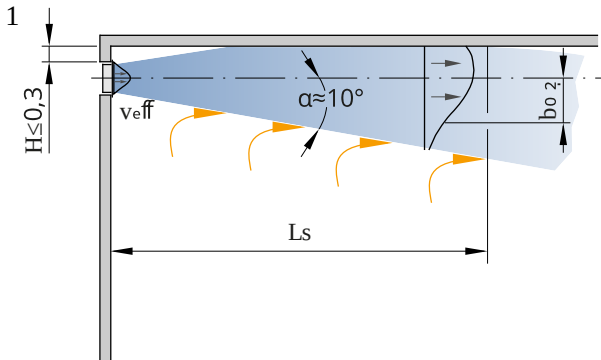
Air pattern in cooling mode, section



1 With ceiling effect (ceiling distance ≤ 0.3 m)

2 Without ceiling effect (ceiling distance ≥ 0.8 m)

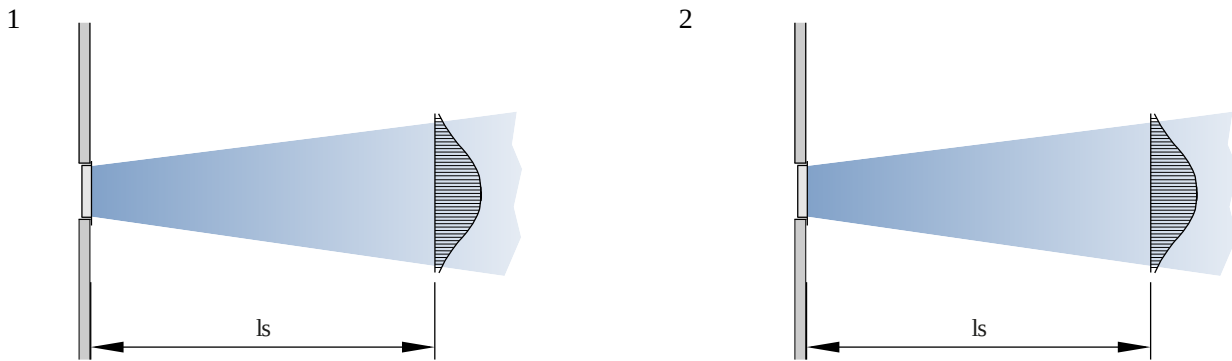
Air pattern, section



1 With ceiling effect (ceiling distance ≤ 0.3 m)

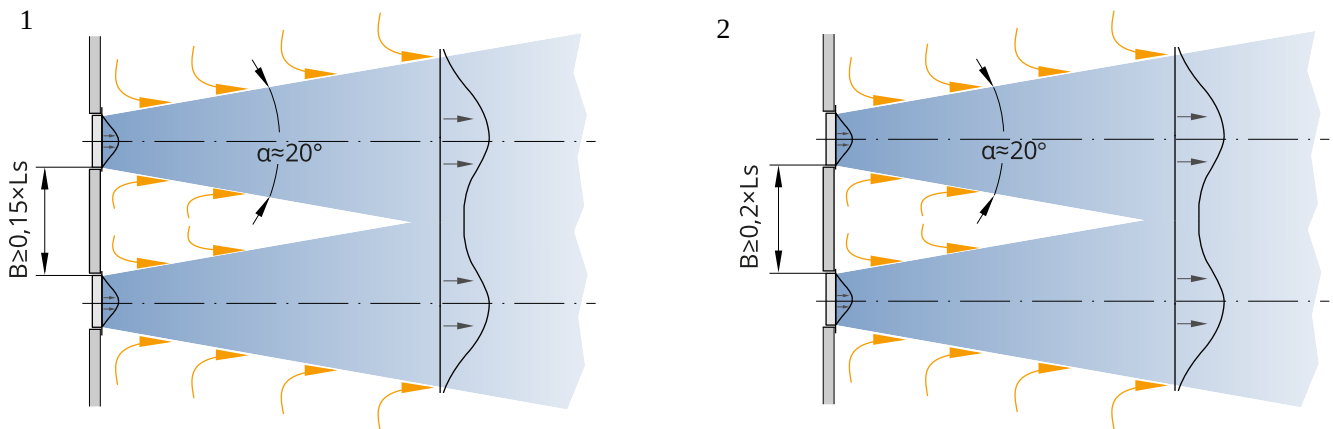
2 Without ceiling effect (ceiling distance ≥ 0.8 m)

Air pattern, top view



- 1 With ceiling effect
2 Without ceiling effect

Air pattern of several single grilles, top view



- 1 With ceiling effect (distance between the single grilles $\geq 0.15 \times l_s$)
2 Without ceiling effect (distance between the single grilles $\geq 0.2 \times l_s$)

Technical data

Nominal sizes	225 × 125 – 1225 × 525 mm
Linear run section	H: 125, 225, 325 mm
minimum volume flow	16 – 568 l/s or 58 – 2045 m³/h
maximum volume flow at L _{WA} maximum 40 dB(A) without attachments	97 – 2651 l/s or 350 – 9544 m³/h
Supply air to room air temperature difference	-12 – +4 K

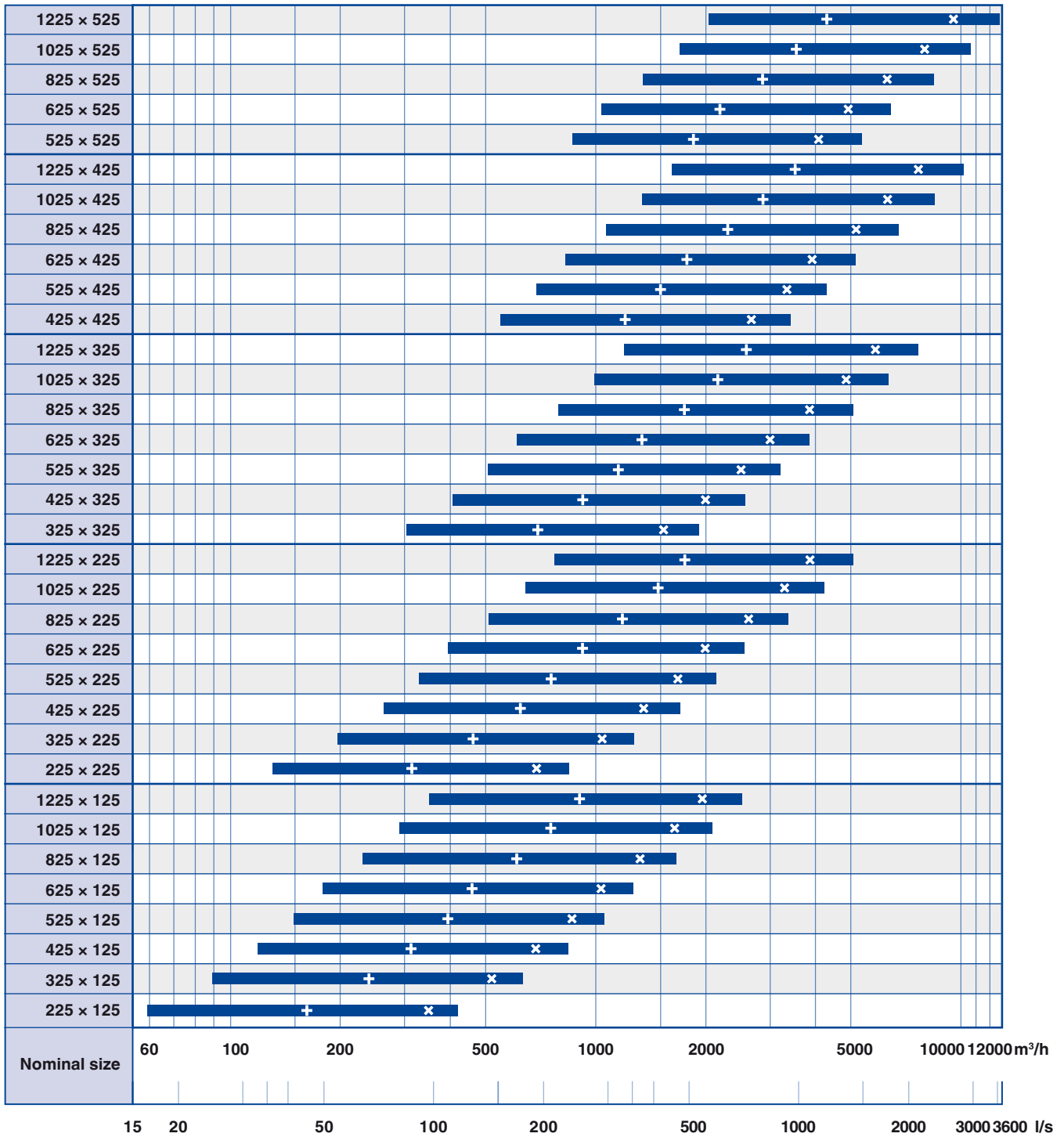
Volume flow for single grilles (undivided variant) for supply air.

Geometrically free cross-section

H [mm]	L [mm]							
	225	325	425	525	625	825	1025	1225
	A _{geo} [m²]							
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	0.31
525				0.16	0.182	0.257	0.322	0.387

Quick sizing

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



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

Specification text

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

Ventilation grille with gently sloped border, rectangular, for supply and extract air. Function and aesthetics combined in an appealing design. Gently sloped front border. Preferably for wall and sill installation, but also for rectangular air ducts. Ready-to-install component, consisting of a front border and symmetrically and aerodynamically shaped horizontal blades with a concealed linkage that allows the blades to be adjusted 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

Material and surfaces

- Front border made of galvanised sheet steel
- Blades made of aluminium
- Linkage and end pieces of the blades made of special high-temperature resistant plastic, according to UL 94, V-0, flame-retardant
- Front border and blades powder-coated RAL 9010, pure white

- AG attachment: Frame made of sheet steel, blades made of aluminium
- AS and SAS attachment made of aluminium
- DG attachment made of sheet steel, black powder-coated
- 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

- q_v [m³/h]
- Δp_t [Pa]

Air-regenerated noise

- L_{WA} [dB(A)]

Life cycle assessment

A life cycle assessment is available for the product type in the form of an environmental product declaration (EPD), which has been checked and published by a programme holder.

Order code

X-GRILLE-Basic – AG / 1025 × 125 / B1 / VS / P1 - RAL 9010

1	2	3	4	5	6

1 Type**X-GRILLE Basic** Single grille**2 Attachment****A** without attachment (front grille 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** Attachments D and AG combined**3 Nominal size [mm]**

Specify length × height

4 Installation subframe

No entry: Without installation subframe

B1 With installation subframe**5 Fixing****VS** concealed screw fixing with installation subframe**SP** concealed screw fixing without installation subframe**KB** without fixing material**6 Surface**

No entry: powder-coated, RAL 9010 (pure white)

P1 powder-coated; specify RAL CLASSIC colour

Gloss level

RAL 9010 GU 50

RAL 9006 GU 30

All other RAL colours GU 70

Order example: X-GRILLE-Basic-AG/525×225/B1/Vs/P1-RAL9016

Type	X-GRILLE Basic – Single grille
Attachment	Damper unit, opposed action blades
Nominal size [mm]	Length 525, height 225
Installation subframe	with installation subframe
Fixing	concealed screw fixing with installation subframe
Surface	powder-coated, RAL 9016 (traffic white), GU 70

X-GRILLE-Basic – E – R – AG / 950 × 225 / D1 / VS / P1 - RAL 9016

1	2	3	4	5	6	7	8
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1 Type**X-GRILLE Basic** Linear run section**2 Section****E** End section**M** Middle section**3 End section**

With section E only

R Right end section**L** Left end section**4 Attachment****A** without attachment (front grille only)**AG** Damper unit, opposed action blades**D** Air direction control, blades installed at 90° to the front blades, independently adjustable**DG** Attachments D and AG combined**5 Nominal size [mm]**For section **E**

Length

950 – 2025

Height

125, 225, 325For section **M**

Length

2000

Height

125, 225, 325**Order example: X-GRILLE-Basic-E-R-AG/950×225/D1/VS/P1-RAL9016**

Type	X-GRILLE Basic – Linear run section
Section	End section
End section	Right end section
Attachment	Damper unit, opposed action blades
Nominal size [mm]	Length 950, height 225
Installation subframe	Installation subframe for the end section
Fixing	concealed screw fixing with installation subframe
Surface	powder-coated, RAL 9016 (traffic white), GU 70

6 Installation subframe

No entry: without installation subframe

D1 Installation subframe for the end section**F1** Installation subframe for the middle section**7 Fixing****VS** concealed screw fixing with installation subframe**SP** concealed screw fixing without installation subframe**KB** without fixing material**8 Surface**

No entry: powder-coated, RAL 9010 (pure white)

P1 powder-coated; specify RAL CLASSIC colour

Gloss level

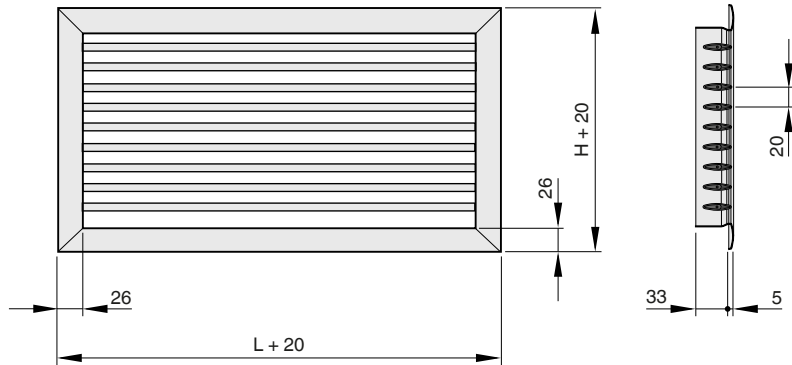
RAL 9010 GU 50

RAL 9006 GU 30

All other RAL colours GU 70

Dimensions

X-GRILLE Basic, Front border width 26 mm



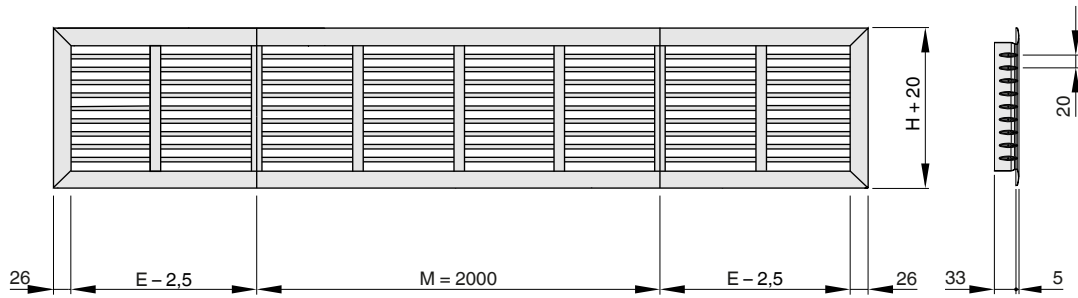
L Nominal length
 Vertical centre mullion if L > 625 mm
 H Nominal height

X-GRILLE Basic, single grille

H	L [mm]							
	225	325	425	525	625	825	1025	1225
	m [kg]							
125	0.5	0.6	0.8	0.9	1.1	1.4	1.7	2
225	0.8	1	1.2	1.5	1.7	2.2	2.7	3.1
325		1.4	1.7	2	2.3	3	3.7	4.3
425			2.2	2.6	3	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, linear run section

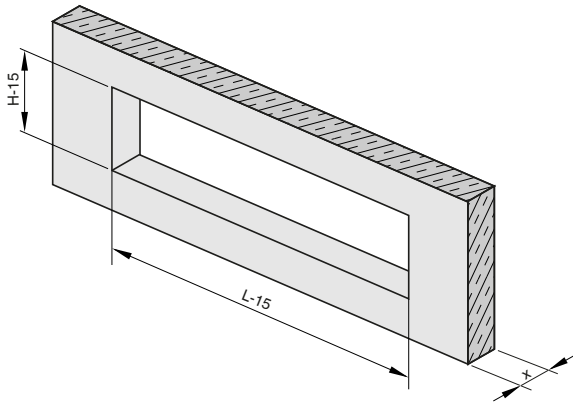


E End section
M Middle section
H Nominal height

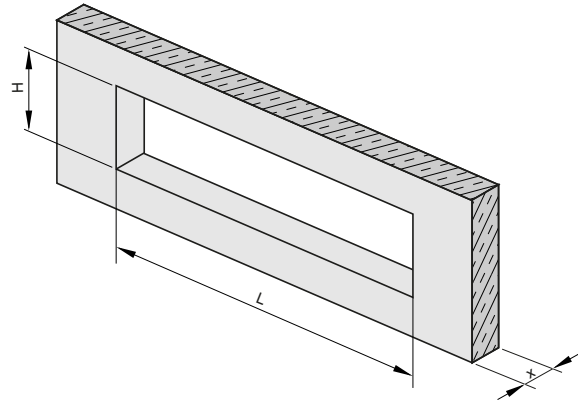
X-GRILLE Basic, linear run section

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

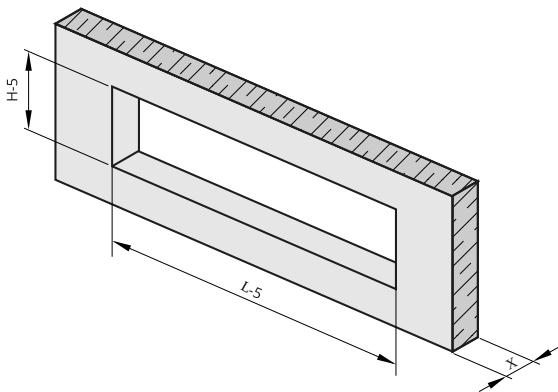
Middle section M: 2000 mm
End section E: 950 – 2025 mm in increments of 1 mm
Weights apply to sections without attachments

Installation opening (KB)

H = nominal height
L = nominal length

Installation opening for mounting with concealed screw fixing and installation subframe (VS)

H = nominal height
L = nominal length

Installation opening for mounting with concealed screw fixing, without installation subframe (SP)

H = nominal height
L = nominal length
X = clamping range

Installation opening TR2 for wall, sill and duct installation

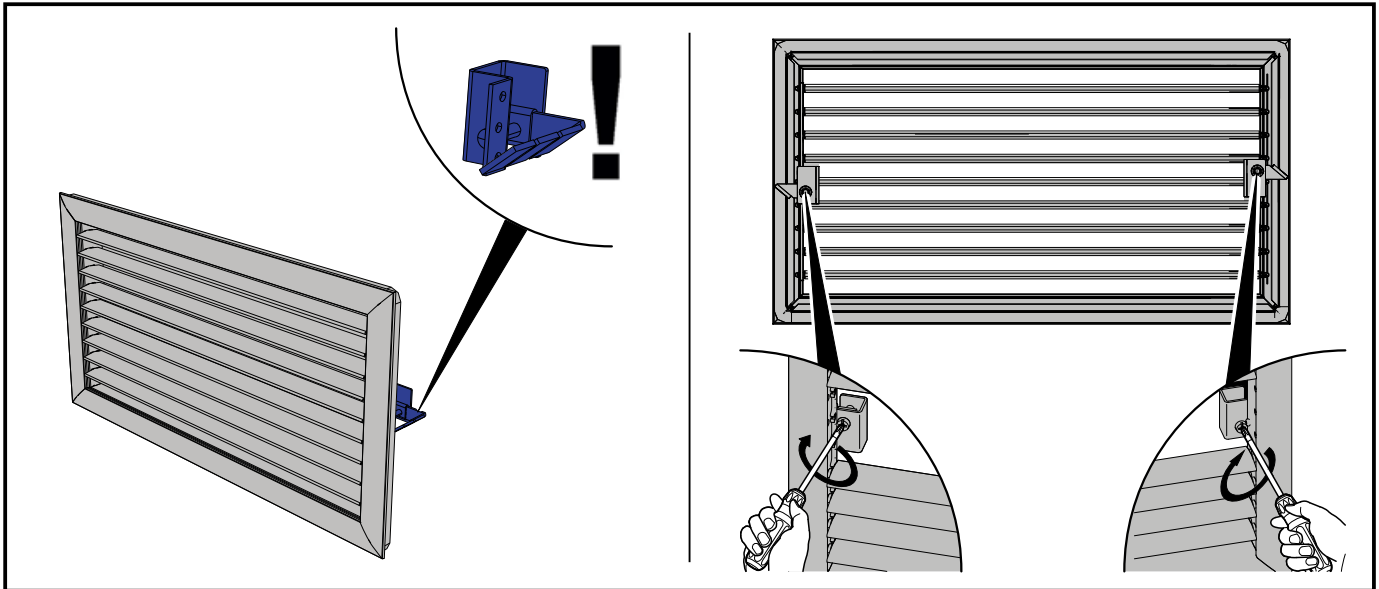
Fixings	Installation opening [mm]	minimum clamping range [mm]	maximum clamping range [mm]
KB	(L-10) × (H-15)	-	-
SP	(L-5) × (H-5)	4	32
VS	L × H	-	-

Number of fixings for SP and VS

H/L	225	325	425	525	625	825	1025	1225	1425	1625	1825	2025
75	2	2	2	2	2	2	2	2	4	4	4	4
125	2	2	2	2	2	2	2	2	4	4	4	4
225	2	2	2	2	2	2	2	2	4	4	4	4
325	-	2	2	2	2	2	2	2	4	4	4	4
425	-	-	-	-	-	4	4	4	6	6	6	6
525	-	-	-	-	-	-	4	4	6	6	6	6

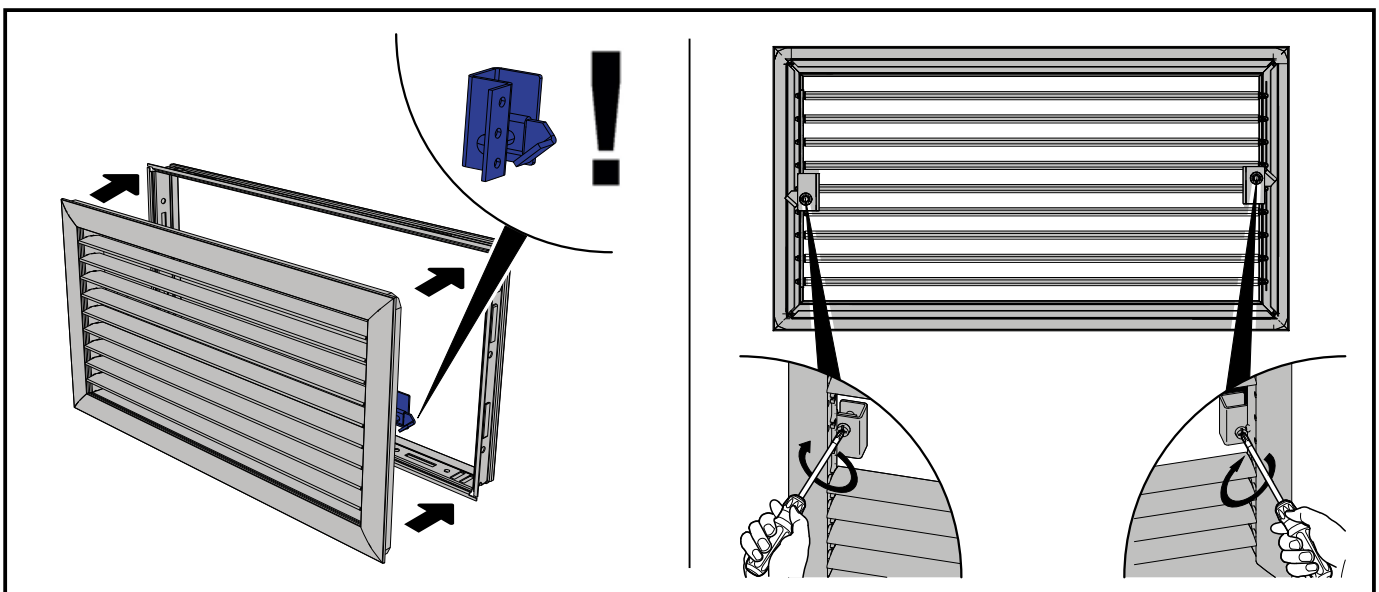
Fixings

X-GRILLE Basic: SP



- With concealed screw fixing
- For installation without installation subframe

X-GRILLE Basic: VS



- With concealed screw fixing
- For installation with installation subframe

Attachments

Damper element, opposed action blades (AG)



Application

- For volume flow balancing of ventilation grilles
- Mainly used in pressure ducts
- Damper elements simplify volume flow balancing during commissioning, for supply air and extract air
- Ventilation grille does not have to be removed for adjustment
- Only available in standard sizes
- From widths (B) of 825 mm, several attachments are installed which are individually adjustable

Parts and characteristics

- Opposed action blades made of aluminium
- Longitudinal and transverse parts made of galvanised sheet steel

Standard sizes

Width (B): 225, 325, 425, 525, 625, 825 mm

Height (H): 75, 125, 225, 325, 425, 525 mm

Hit and miss damper (parallel slide damper) (AS)



Application

- For volume flow balancing of ventilation grilles
- Mainly used in pressure ducts
- Damper elements simplify volume flow balancing during commissioning, preferably for extract air
- Adjustment possible with ventilation grille installed
- Only available in standard sizes
- From widths (B) of 825 mm, several attachments are installed which are individually adjustable

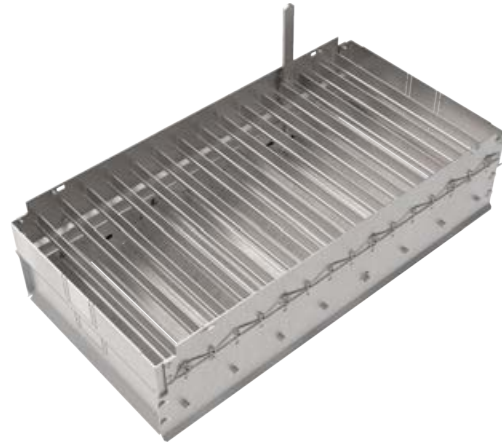
Parts and characteristics

- Hit and miss damper elements with airflow straighteners
- Screw-on adjustment and fixing made of aluminium

Standard sizes

Width (B): 225, 325, 425, 525, 625, 825 mm

Height (H): 75, 125, 225, 325, 425, 525 mm

Second set of blades for air direction control (-D)**Damper element with second set of blades for air direction control (-DG)****Application**

- For air direction control of ventilation grilles
- Mainly used for supply air
- Ventilation grille does not have to be removed for adjustment
- Only available in standard sizes
- From widths (B) of 825 mm, several attachments are installed which are individually adjustable

Parts and characteristics

- Individually adjustable blades rotated 90° to the front blades of the grille for air direction control
- Front border and blades made of black powder-coated sheet steel

Standard sizes

Width (B): 225, 325, 425, 525, 625, 825 mm

Height (H): 75, 125, 225, 325, 425, 525 mm

Application

- For volume flow balancing of ventilation grilles
- Mainly used in pressure ducts
- Damper elements simplify volume flow balancing during commissioning, preferably for supply air
- Ventilation grille does not have to be removed for adjustment
- Only available in standard sizes
- From widths (B) of 825 mm, several attachments are installed which are individually adjustable

Parts and characteristics

- Opposed action aluminium blades for volume flow balancing
- 90° rotated blade made of black powder-coated steel for air direction control

Standard sizes

Width (B): 225, 325, 425, 525, 625, 825 mm

Height (H): 75, 125, 225, 325, 425, 525 mm

Weights

Weights attachment AG [kg]

H/L	225	325	425	525	625	825	1025	1225	1425	1625	1825	2025
125	0.5	0.6	0.8	1.0	1.2	1.5	1.9	2.3	2.6	2.9	3.2	3.6
225	0.7	0.9	1.1	1.4	1.6	2.1	2.5	3.0	3.5	4.0	4.4	4.8
325		1.2	1.4	1.7	2.0	2.6	3.2	3.8	4.3	4.9	5.5	6.1
425					2.5	3.2	3.9	4.6	5.4	6.1	6.8	7.5
525							4.5	5.3	6.4	7.1	7.8	8.6

Weights attachment DG [kg]

H/L	225	325	425	525	625	825	1025	1225	1425	1625	1825	2025
125	0.6	0.8	1.0	1.2	1.5	1.9	2.4	2.8	3.2	3.6	4.1	4.6
225	0.8	1.2	1.5	1.8	2.2	2.8	3.5	4.1	4.7	5.3	6.0	6.7
325		1.6	2.0	2.4	2.9	3.7	4.6	5.5	6.2	7.0	7.9	8.8
425					3.6	4.6	5.7	6.8	7.7	8.7	9.8	10.9
525							6.8	8.1	9.1	10.1	11.4	12.9

Weights attachment D [kg]

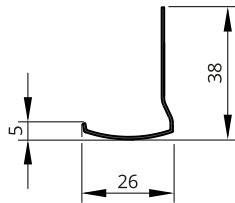
H/L	225	325	425	525	625	825	1025	1225	1425	1625	1825	2025
125	0.3	0.4	0.5	0.6	0.7	0.9	1.2	1.4	1.5	1.7	2.0	2.3
225	0.4	0.6	0.7	0.9	1.0	1.4	1.7	2.0	2.2	2.6	3.0	3.3
325		0.7	0.9	1.2	1.4	1.8	2.2	2.7	3.0	3.4	3.8	4.2
425					1.7	2.3	2.8	3.3	3.7	4.3	4.9	5.4
525							3.3	4.0	4.4	5.1	5.7	6.3

Weights attachment AS [kg]

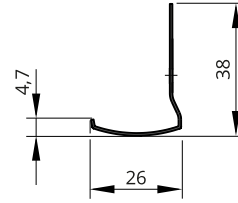
H/L	225	325	425	525	625	825	1025	1225	1425	1625	1825	2025
125	0.4	0.6	0.8	0.9	1.1	1.4	1.8	2.1	2.4	2.7	3.0	3.4
225	0.8	1.0	1.3	1.6	1.9	2.5	3.0	3.6	4.1	4.7	5.3	5.8
325		1.5	1.9	2.3	2.7	3.5	4.3	5.1	5.8	6.6	7.4	8.2
425					3.8	4.9	6.0	7.2	8.2	9.3	10.4	11.5
525							7.3	8.7	10.5	11.8	13.0	14.1

Product details

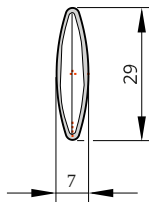
Front border – longitudinal section (L) 26 mm



Front border – transverse section (H) 26 mm



Blade X-GRILLE



Wall installation



Nominal lengths up to 625 mm: without vertical centre mullion

Installation and commissioning

- Installation preferably in walls, sills and rectangular air ducts

The schematic diagrams are provided to illustrate installation details.

Volume flow balancing

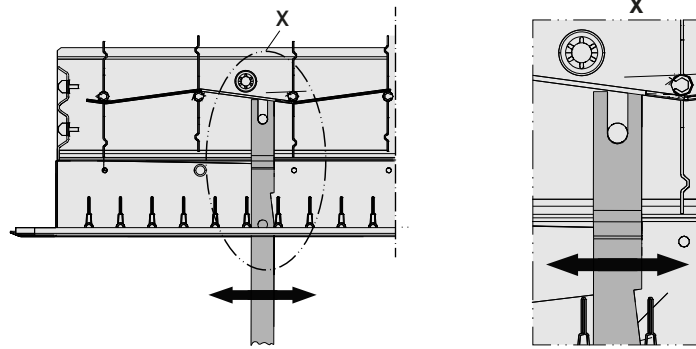
When several ventilation grilles are connected to one air duct, it may be necessary to balance the volume flow.

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

Air pattern

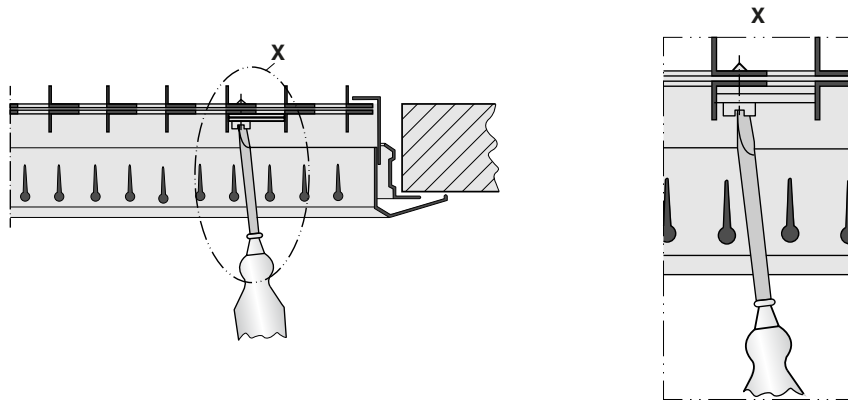
- Adjustable blades: Set the air control blades individually or together and depending on the local conditions
- D, DG: Air direction control, rotated 90° to the front blades, individually adjustable to suit local conditions

Volume flow balancing -AG and -DG



Attachments -AG and -DG

Volume flow balancing -AS



Attachments -AS

Nomenclature

L [mm]

Nominal length of the ventilation grille

H [mm]

Nominal height of the ventilation grille

m [kg]

Weight

L_{WA} [dB(A)]

A-weighted sound power level of air-regenerated noise

H [m³/h]; [l/s]

Volume flow

Δp_t [Pa]

Total differential pressure

l_s [m]

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