

# Volume flow rate balancing Type DGW



**Damper units made of dip coated sheet steel,  
with air control blades,  
for installation into rectangular ducts**

Damper units with opposed action blades and blades for air direction control

- Nominal sizes 225 × 75 – 1225 × 525 mm
- Perimeter angle section frame

Type		Page
DGW	General information	3.5 – 2
	Order code	3.5 – 3
	Dimensions and weight	3.5 – 4
	Specification text	3.5 – 5
	Basic information and nomenclature	3.8 – 1

### Description

#### Application

- Type DGW damper units for supply air and extract air
- Adjustable blades for volume flow rate balancing
- Adjustable blades for air direction control
- For installation into rectangular ducts

#### Nominal sizes

- Nominal length: 225, 325, 425, 525, 625, 825, 1025, 1225 mm
- Nominal height: 75, 125, 225, 325, 425, 525 mm

#### Parts and characteristics

- Angle section frame
- Adjustable transverse opposed action blades for flow adjustment
- Individually adjustable, transverse blades for air direction control

#### Construction features

- Flow adjustment: Centrally supported blades
- Air direction control: Asymmetrically supported blades
- Angle section frame without fixing holes

#### Materials and surfaces

- Angle section frame and blades made of sheet steel
- Angle section frame and blades dip coated RAL 9005, jet black

#### Installation and commissioning

- Installation preferably in rectangular ducts
- Fix the angle section frame with screws or rivets

#### Maintenance

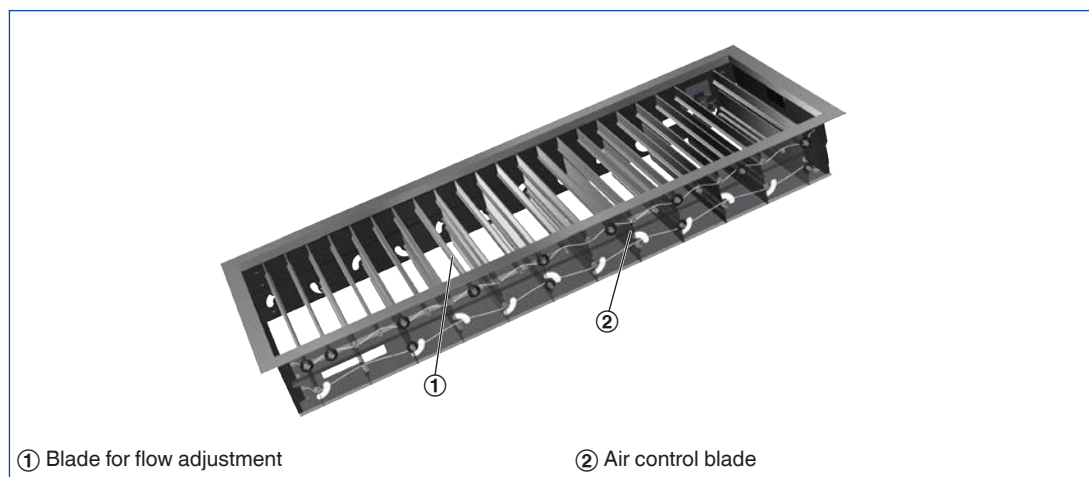
- Maintenance-free as construction and materials are not subject to wear
- Inspection and cleaning to VDI 6022

### Technical data

<b>Nominal sizes</b>	225 × 75 to 1225 × 525 mm
----------------------	---------------------------

### Function

#### Schematic illustration of DGW

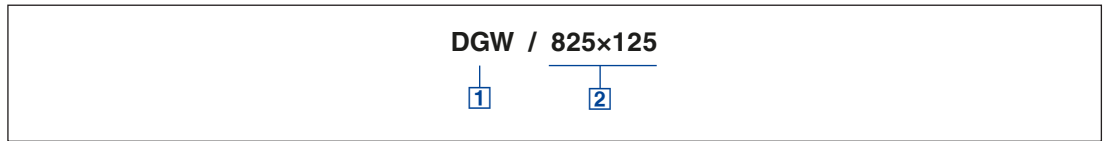


① Blade for flow adjustment

② Air control blade

Order code

DGW



1 Type

DGW Damper unit

2 Nominal size [mm]

L x H

Order example

DGW/625x225

Nominal size

625 x 225 mm



**Standard text**

Damper units, rectangular, made of galvanised sheet steel, for supply and extract air. Installation preferably in rectangular ducts. Ready-to-install component which consists of an angle section frame, transverse opposed action blades for flow adjustment and individually adjustable blades for air direction control.

**Materials and surfaces**

- Angle section frame and blades made of sheet steel
- Angle section frame and blades dip coated RAL 9005, jet black

**Technical data**

- Nominal sizes: 225 × 75 to 1225 × 525 mm

**Sizing data**

- $\dot{V}$  \_\_\_\_\_ [m<sup>3</sup>/h]
- $\Delta p_t$  \_\_\_\_\_ [Pa]
- $L_{WA}$  Air-regenerated noise \_\_\_\_\_ [dB(A)]

**Order options**

**1** Type

**DGW** Damper unit

**2** Nominal size [mm]

L × H

# Ventilation grilles

## Basic information and nomenclature



### Ventilation grilles

- Product selection
- Quick sizing
- Principal dimensions
- Nomenclature
- Sizing and sizing example
- Function
- Installation information
- Commissioning

# Ventilation grilles

## Basic information and nomenclature

### Product selection

	Installation into walls, sills or rectangular ducts										
	X-GRILLE Cover	X-GRILLE Basic	ASL	AT	VAT	AH	AWT	SL	TR	TRS	TRSK
<b>Blades</b>											
Longitudinal	●	●	●	●		●	●	●	●		
Transverse					●					●	●
Fixed						●	●				
Adjustable	●	●	●	●	●			●	●	●	●
Aluminium	●	●	●	●	●	●	●				
Galvanised sheet steel									●	●	●
Sheet steel								●	●	●	
Discharge angle	var.	var.	var.	var.	var.	0°, 15°	0°	var.	var.	var.	var.
Blade pitch [mm]	20	20	16,7	16,7	16,7	12,5	16,7	20	20	20	20
<b>Border</b>											
Width of longitudinal section [mm]	28	26	28	23, 27	23, 27	20, 28	30	28	27	27	27
Width of transverse section [mm]								20			
Aluminium	●		●	●	●	●	●				
Galvanised sheet steel		●							●	●	●
Sheet steel								●	●	●	
Concealed screw fixing	●	●	●	●	●	●		●	●	●	
Spring clip fixing	●	●	●	●	●	●					
Screw fixing	●			●	●	●	●		●	●	●
<b>Attachments</b>											
AG, AS, D,DG	●	●	●	●	●	●	●	●	●	●	
*S, *5											●
<b>Accessories</b>											
Installation subframe	●	●	●	●	●	●	●	●	●	●	●
Installation subframe with filter casing	●	●		●	●	●		●	●	●	
<b>Nominal sizes</b>											
Length [mm]	225 - 1225	225 - 1225	225 - 1225	225 - 1225	225 - 1225	225 - 1225	325 - 1225	225 - 1225	225 - 1225	225 - 1225	225 - 1225
Horizontal run section	●	●				●		●			
Height [mm]	125 - 525	125 - 525	125 - 525	125 - 525	75 - 525	75 - 425	125 - 325	125 - 525	125 - 525	75 - 325	75 - 325
<b>Technical data</b>											
Volume flow rate range [l/s]*	16 - 2554	19 - 2651	11 - 1999	11 - 1999	11 - 1999	10 - 1234	17 - 949	11 - 1999	11 - 1999	11 - 1999	11 - 1999
Volume flow rate range [m³/h]*	58 - 9194	68 - 9544	40 - 7196	40 - 7196	40 - 7196	36 - 4442	61 - 3416	40 - 7196	40 - 7196	40 - 7196	40 - 7196
●	Möglich										
	Nicht Möglich										

# Ventilation grilles

## Basic information and nomenclature

### Product selection

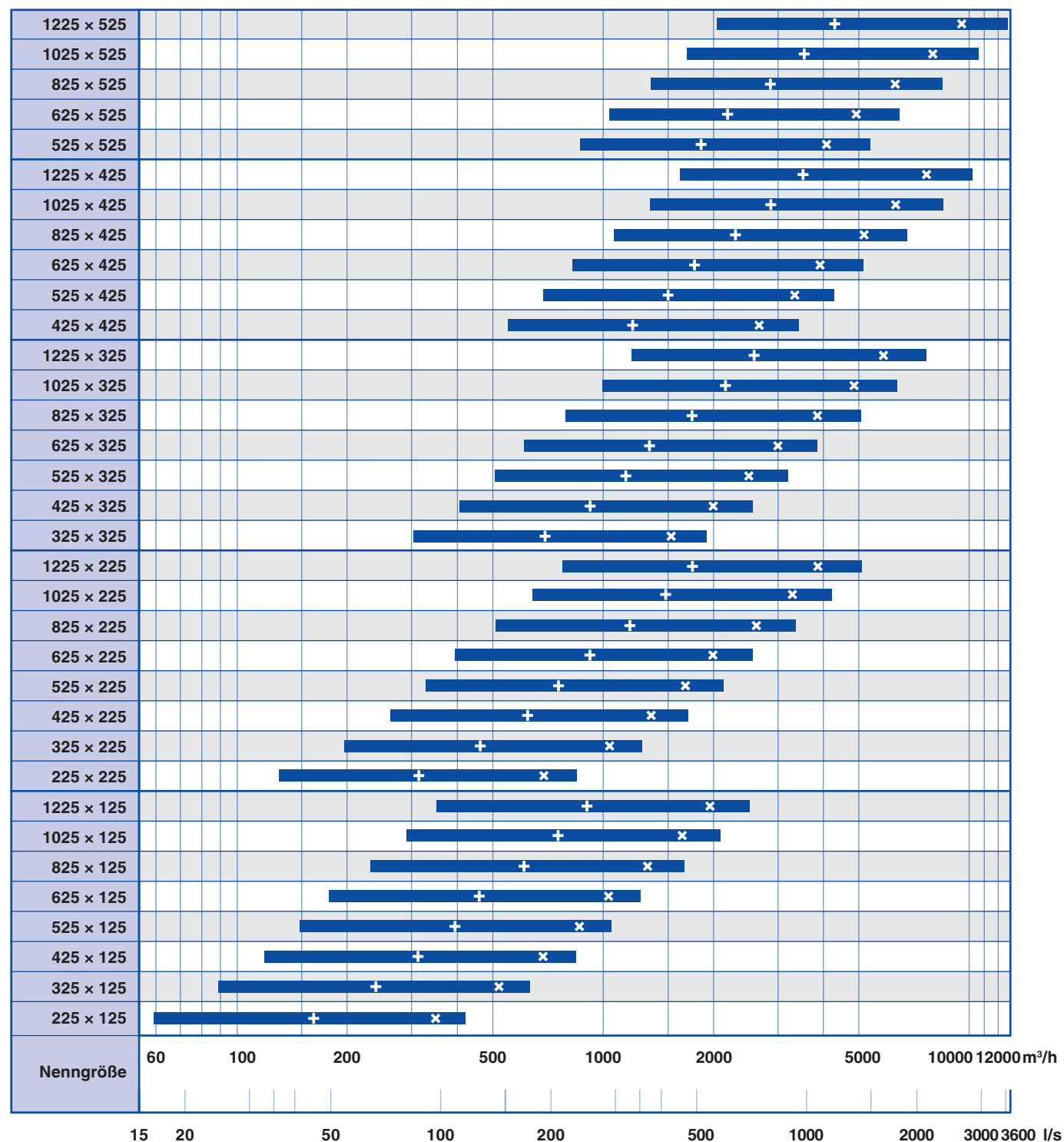
	Grille cores	Floor installation		Door and wall installation	Installation into circular ducts
	EF	AF	ARR	AGS	TRSR
<b>Blades</b>					
Longitudinal	●	●		●	
Transverse			●		●
Fixed	●	●	●	●	
Adjustable					●
Aluminium	●	●	●	●	
Galvanised sheet steel					●
Discharge angle	0°, 15°	0°, 15°	0°		var.
Blade pitch [mm]	12,5, 16,7	12,5	19	20	20
<b>Border</b>					
Width of longitudinal section [mm]		5,5		30	24
Width of transverse section [mm]					
Galvanised sheet steel					●
Aluminium		●		●	
Screw fixing				●	●
<b>Attachments</b>					
AG, AS, D,DG		●			
*S, *5					●
<b>Accessories</b>					
Installation subframe		●		●	●
<b>Nominal sizes</b>					
Length [mm]	225 – 1225	225 – 1225	1000 – 3000	225 – 1225	225 – 1225
Horizontal run section	●	●	●		
Height [mm]	75 – 425	75 – 425	150 – 450	125 – 525	75 – 225
<b>Technical data</b>					
Volume flow rate range [l/s]		10 – 1234		4 – 533	11 – 1999
Volume flow rate range [m³/h]		36 – 4442		14 – 1918	40 – 7197
●	Möglich				
	Nicht Möglich				



# Ventilation grilles

## Basic information and nomenclature

### Quick sizing for X-GRILLE Cover, X-GRILLE Basic

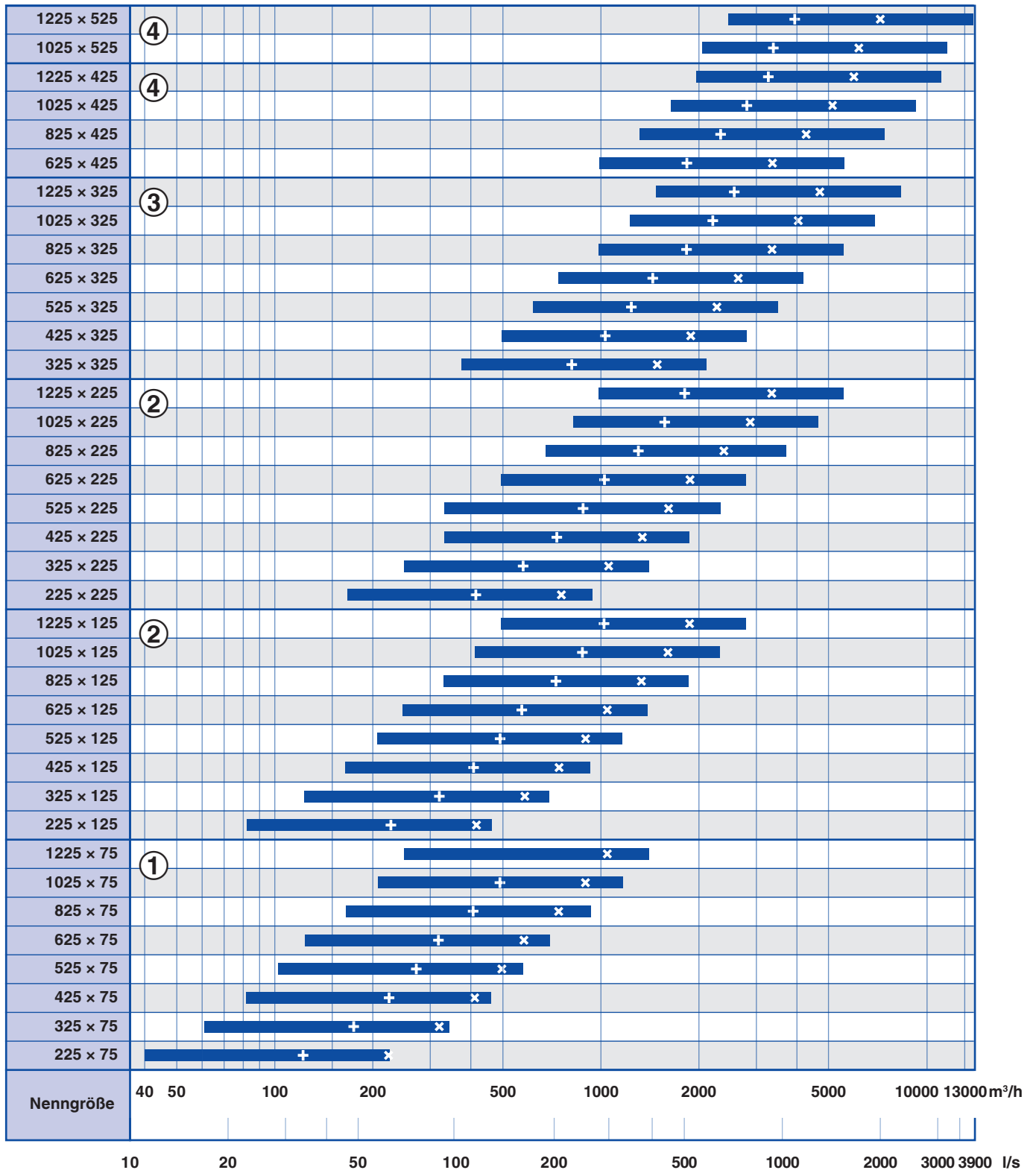


×  $L_{WA} = 40 \text{ dB(A)}$  with unrestricted airflow +  $L_{WA} = 40 \text{ dB(A)}$  with airflow restricted by 50 %

# Ventilation grilles

## Basic information and nomenclature

### Quick sizing for ASL, AT, KS, SL, TR, TRS, TRSK, TRSR, VAT



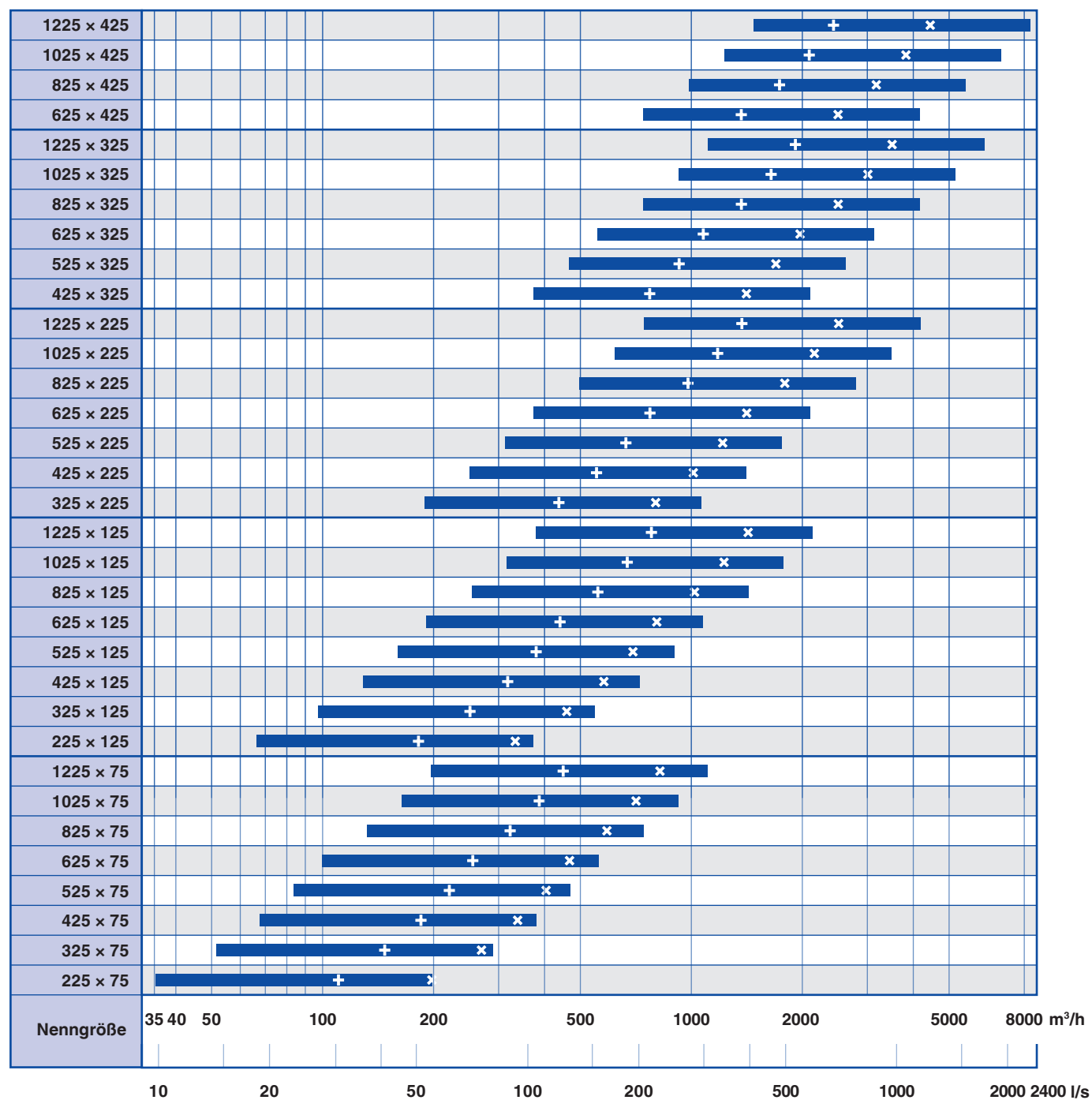
- ① TRS, TRSK, TRSR, VAT
- ② ASL, AT, KS, SL, TR, TRS, TRSK, TRSR, VAT
- ③ ASL, AT, SL, TR, TRS, TRSK, VAT
- ④ ASL, AT, SL, TR, VAT

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

# Ventilation grilles

## Basic information and nomenclature

### Quick sizing for AF, AH, EF

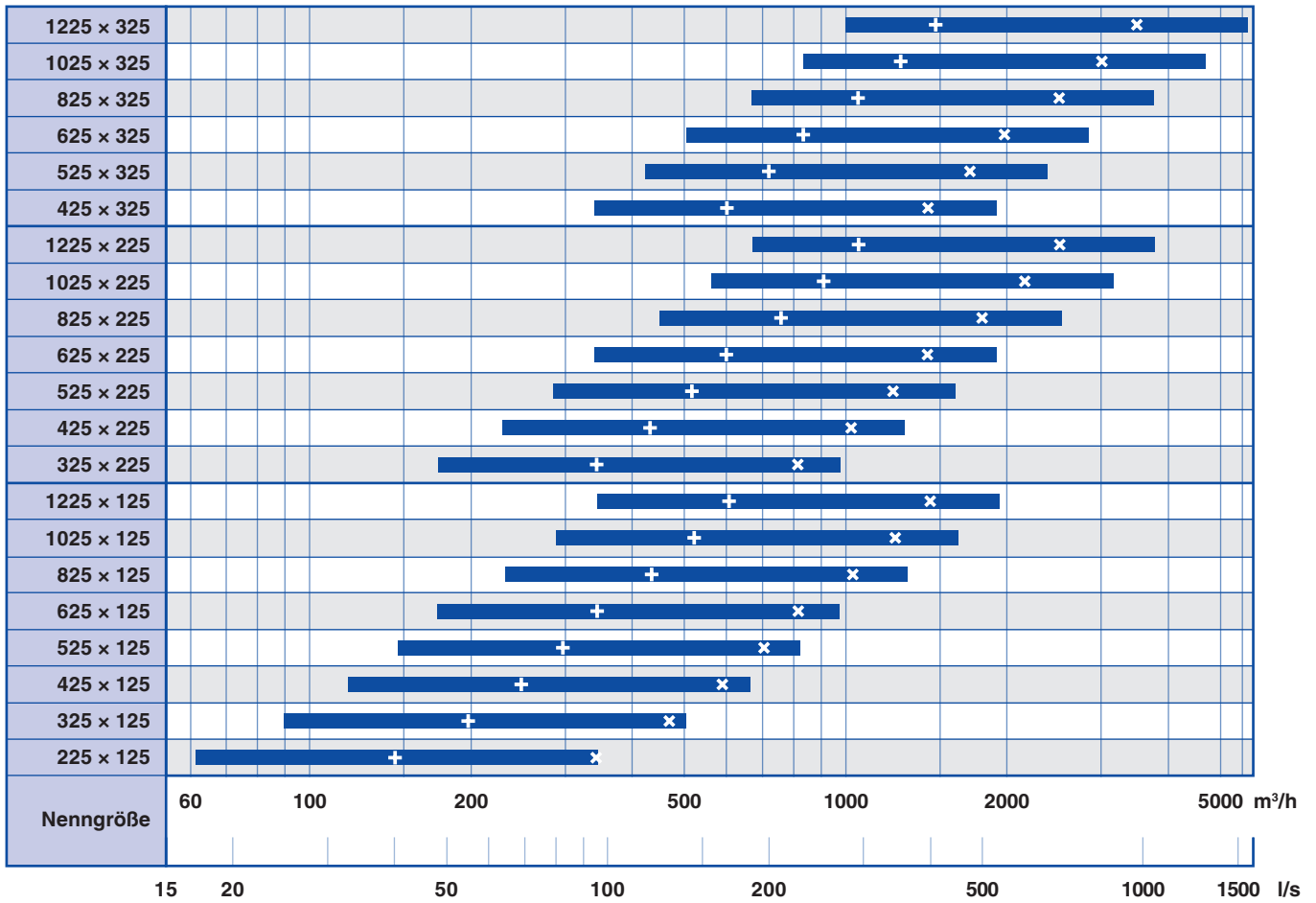


×  $L_{WA} = 40$  dB(A) with unrestricted airflow +  $L_{WA} = 40$  dB(A) with airflow restricted by 50 %

# Ventilation grilles

## Basic information and nomenclature

### Quick sizing for AWT

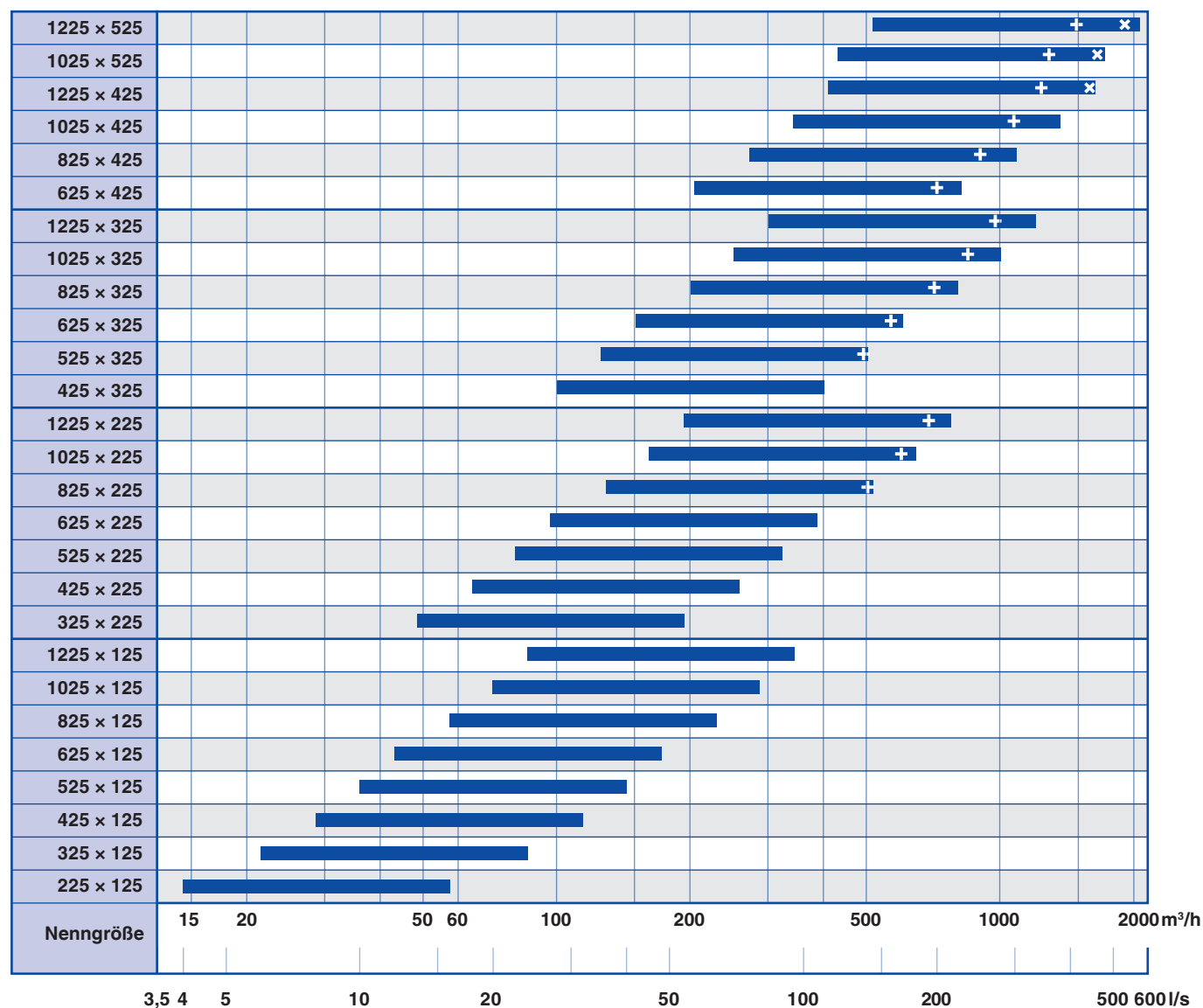


×  $L_{WA} = 40$  dB(A) with unrestricted airflow +  $L_{WA} = 40$  dB(A) with airflow restricted by 50 %

# Ventilation grilles

## Basic information and nomenclature

### Quick sizing for AGS



x  $L_{WA} = 40 \text{ dB(A)}$  +  $L_{WA} = 35 \text{ dB(A)}$

# Ventilation grilles

## Basic information and nomenclature

### 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

#### **$\dot{V}$ [ $m^3/h$ ] and [l/s]**

Volume flow rate

#### **$\Delta p_t$ [Pa]**

Total differential pressure

#### **$l_s$ [m]**

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

# Ventilation grilles

## Basic information and nomenclature

### Sizing with the help of this catalogue

This catalogue provides convenient quick sizing tables for ventilation grilles. The tables give supply air volume flow rates for all nominal sizes. The volume flow rates which apply to a sound power level of the air-regenerated noise of 40 dB(A) with an open damper unit (unrestricted airflow), with no damper unit, or with a damper unit and the airflow restricted by 50 % are marked. Sizing data for other volume flow rates and damper blade positions can be determined quickly and precisely using the Easy Product Finder design programme.

3

### Sizing example

#### Given data

$\dot{V} = 335 \text{ l/s}$  (1206  $\text{m}^3/\text{h}$ )  
 Ventilation grilles, made of steel, with adjustable blades  
 Maximum sound power level of 40 dB(A), with the airflow restricted by 50 %  
 Nominal height as low as possible

#### Quick sizing

Type SL or TR  
 Nominal sizes: 825 × 225, 525 × 325, 625 × 425  
 Selected: SL/825 × 225

### 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 is titled 'SL-Gitter Zuluft: Bestellschlüssel' and displays the following data:

- Input Parameters:**
  - Volumenstrom [m<sup>3</sup>/h]: 1.200 (823...2964)
  - Zwischenräume/Abstände [m]: L=8,00 (7,0...20,0), H=3,00 (3,0...12,0), B=0,00
  - Temperaturunterschied [K]:  $\Delta T_z = -4,0$  (-12,0...-4,0)
- Product Selection:** SL-AG / 825x225 / M1 / 0 / 0 / 0 / RAL 9010
- Acoustic Results (100% = 'komplett geöffnet'):**

	Zuluft	Abluft
$v_{eff}$	= 2,92	m/s
$\Delta L_1$	= -1,1	K
$l$	= 8	
max. $v_1$	= 0,82	m/s
$b_{0,2}$	= 1,21	m
$v_{eff}(kritisch)$	= 2,14	m/s
$A_{eff}$	= 0,11	m <sup>2</sup>

# Ventilation grilles

## Basic information and nomenclature

### Function

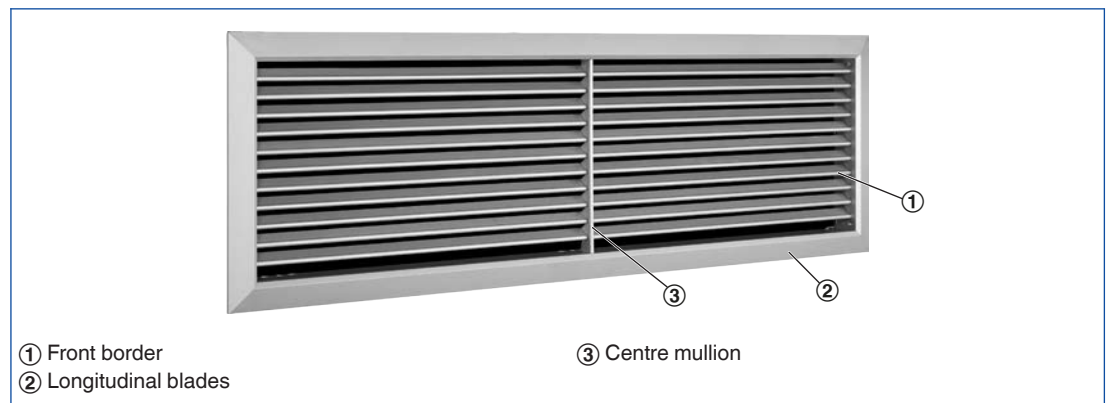
#### Functional description

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.

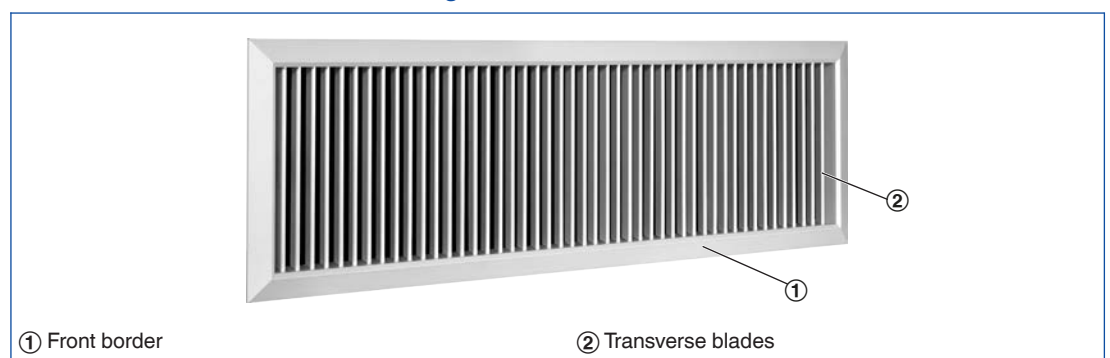
Induction slows the airflow down, i.e. the airflow velocity decreases as the distance from the grille increases. The distance at which the airflow velocity reaches a certain defined value, e.g. 0.2 m/s, is called throw distance. The supply air jet from wall grilles that are installed near the ceiling 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



#### Schematic illustration of a ventilation grille with transverse blades



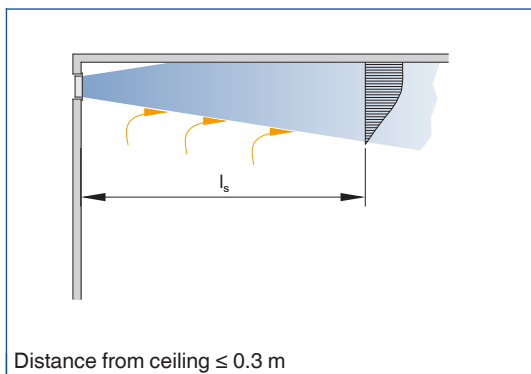


# Ventilation grilles

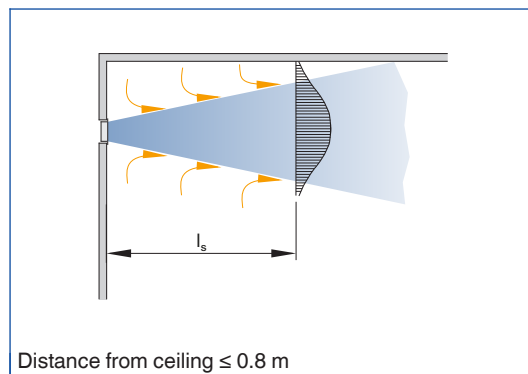
## Basic information and nomenclature

### Air pattern

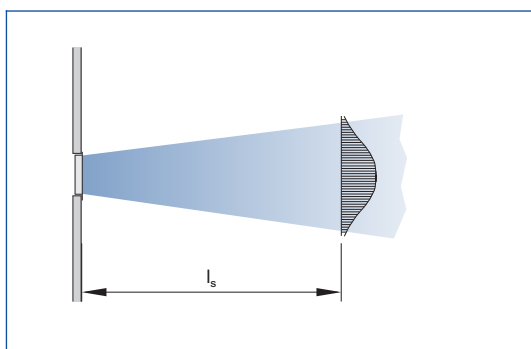
**Air pattern with ceiling effect, sectional view**



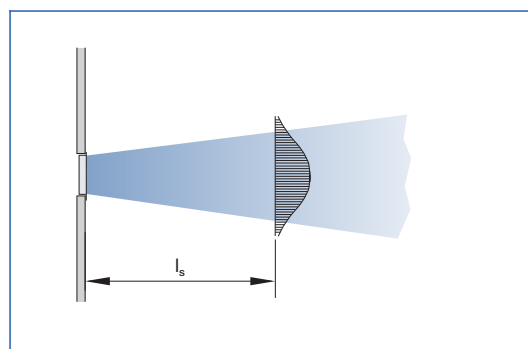
**Air pattern without ceiling effect, sectional view**



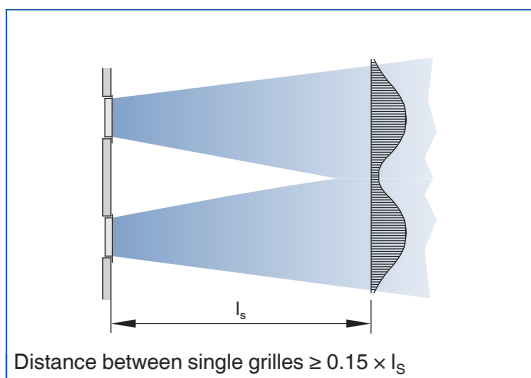
**Air pattern with ceiling effect, top view**



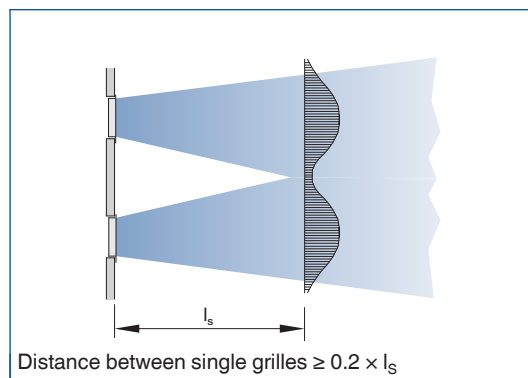
**Air pattern without ceiling effect, top view**



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



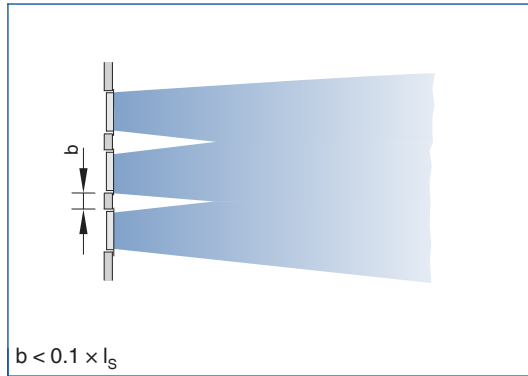
**Air pattern without ceiling effect, group of grilles, top view**



# Ventilation grilles

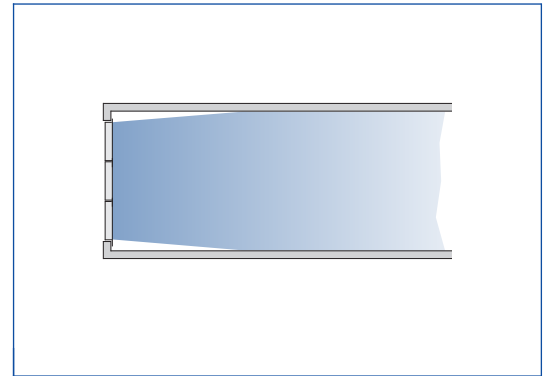
## Basic information and nomenclature

**Air pattern, group of grilles, top view**

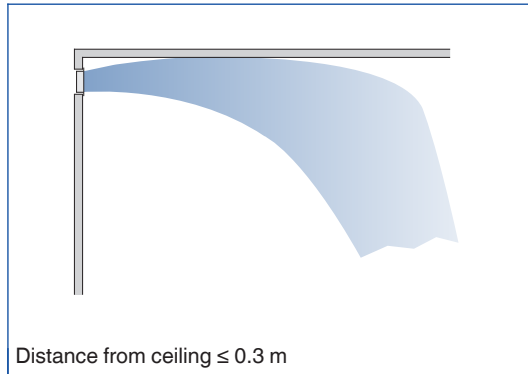


Several single grilles arranged in a row and with not much distance between them have the same effect as a continuous horizontal run.

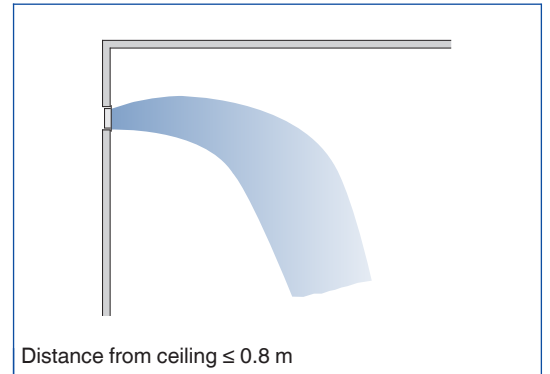
**Air pattern, continuous horizontal run, top view**



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



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



# Ventilation grilles

## Basic information and nomenclature

### Description

#### Installation information

- Installation and making connections to be performed by others

#### Installation subframe

- The installation subframe consists of four sections
- Push the sections together
- For wall installation: Spread the fixing tabs, then mortar them in
- Fixing holes are provided for fixing the frame with screws and rivets to different structures

#### Installation subframe with filter casing

- For wall installation: Spread the fixing tabs, then mortar them in
- Fixing holes are provided for fixing the frame with screws and rivets to different structures

#### Concealed screw fixing

- Only with installation subframe ER

#### Spring clip fixing

- With installation subframe ER and installation subframe with filter casing EF

#### Screw fixing

- Countersunk holes are provided for fixing the frame with screws to different structures

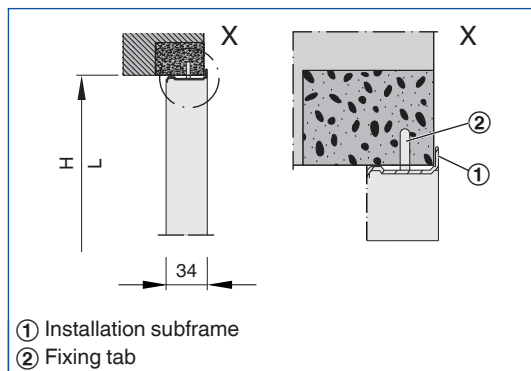
#### Horizontal run sections

- Connect multi-section installation subframes
- Screw-fix the grille end sections and grille middle sections together for continuous horizontal runs

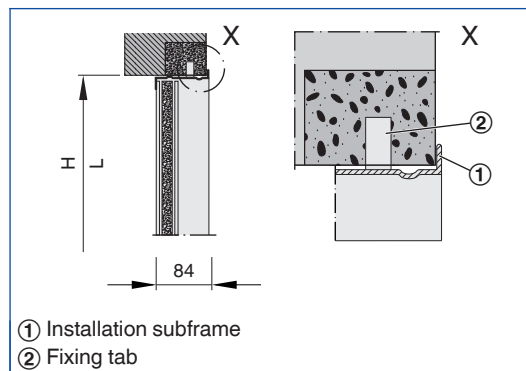
3

### Installation subframe

#### Installation dimensions of installation subframe ER for ventilation grilles

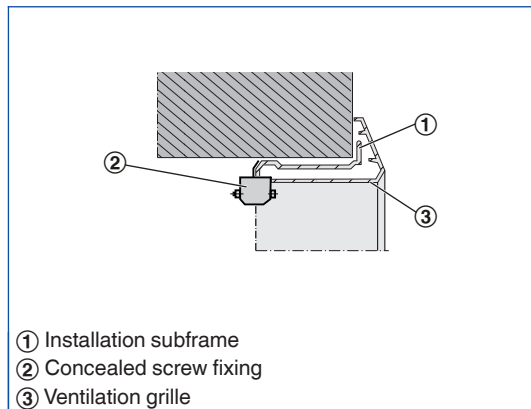


#### Installation dimensions of installation subframe with filter element (EF)

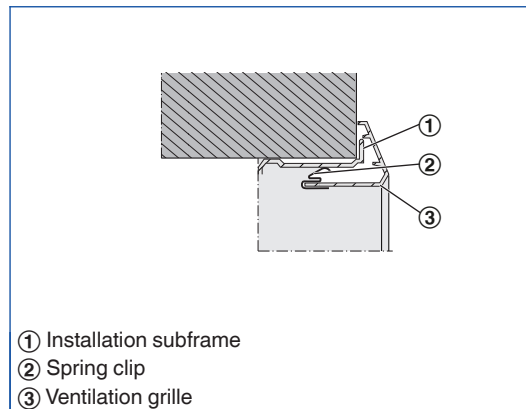


### Fixing of ventilation grilles

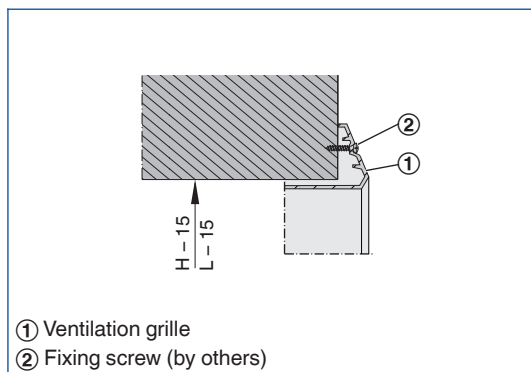
#### Ventilation grille with concealed screw fixing



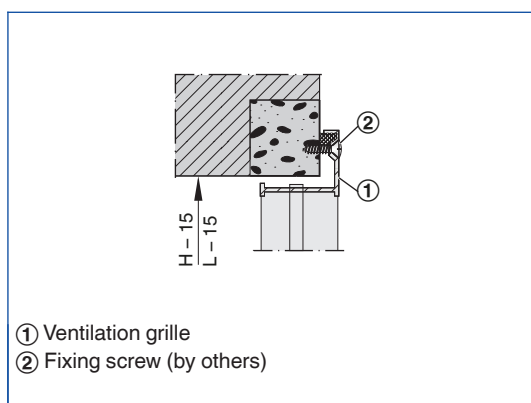
#### Ventilation grille with spring clip fixing



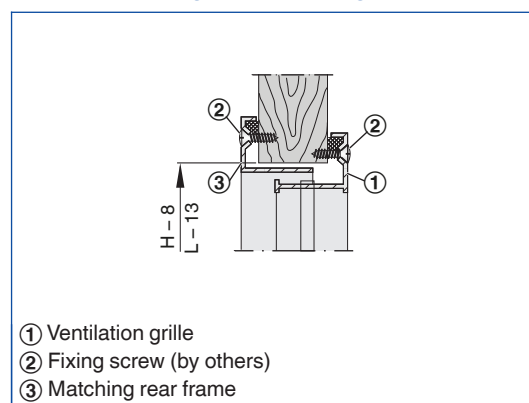
### Ventilation grille with screw fixing



### Ventilation grille AGS with screw fixing, without installation subframe

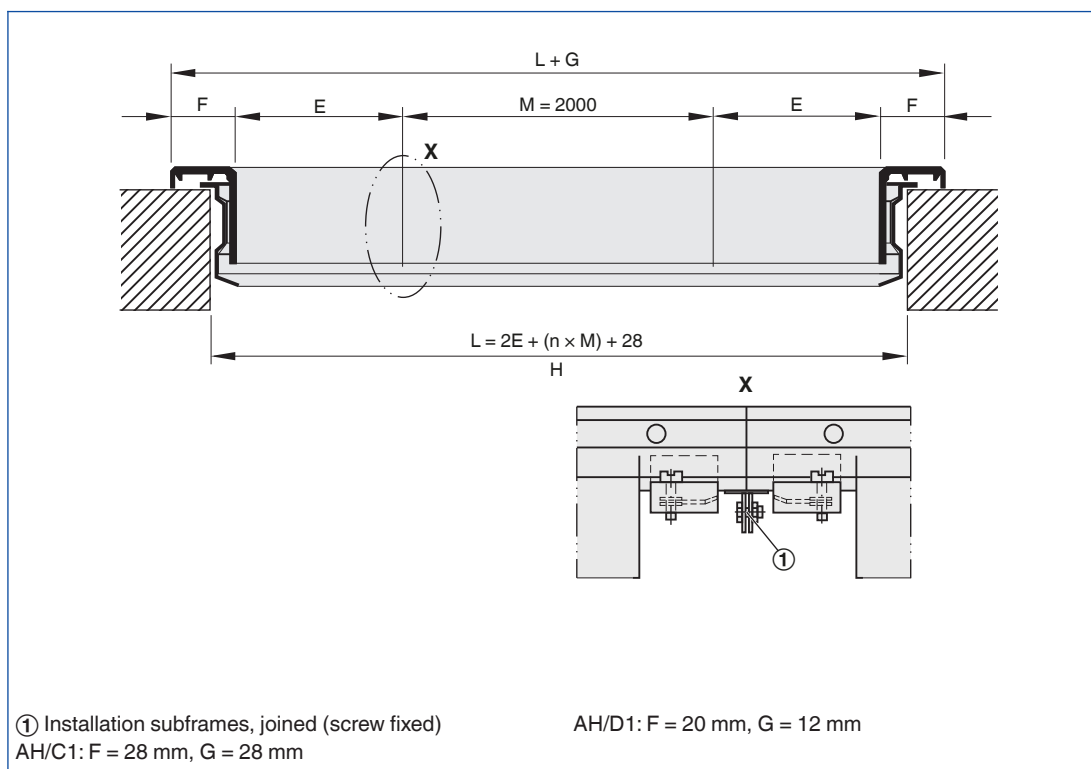


### Ventilation grille AGS-T, with screw fixing and matching rear frame

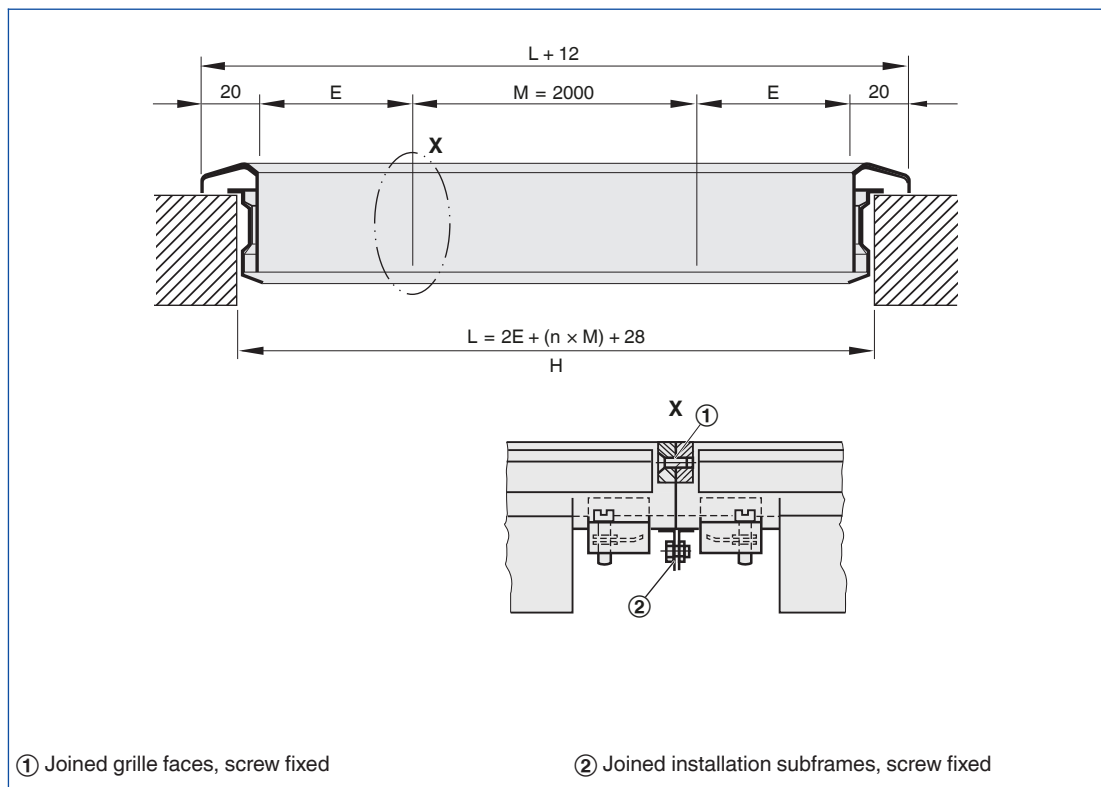


### Grille tapes

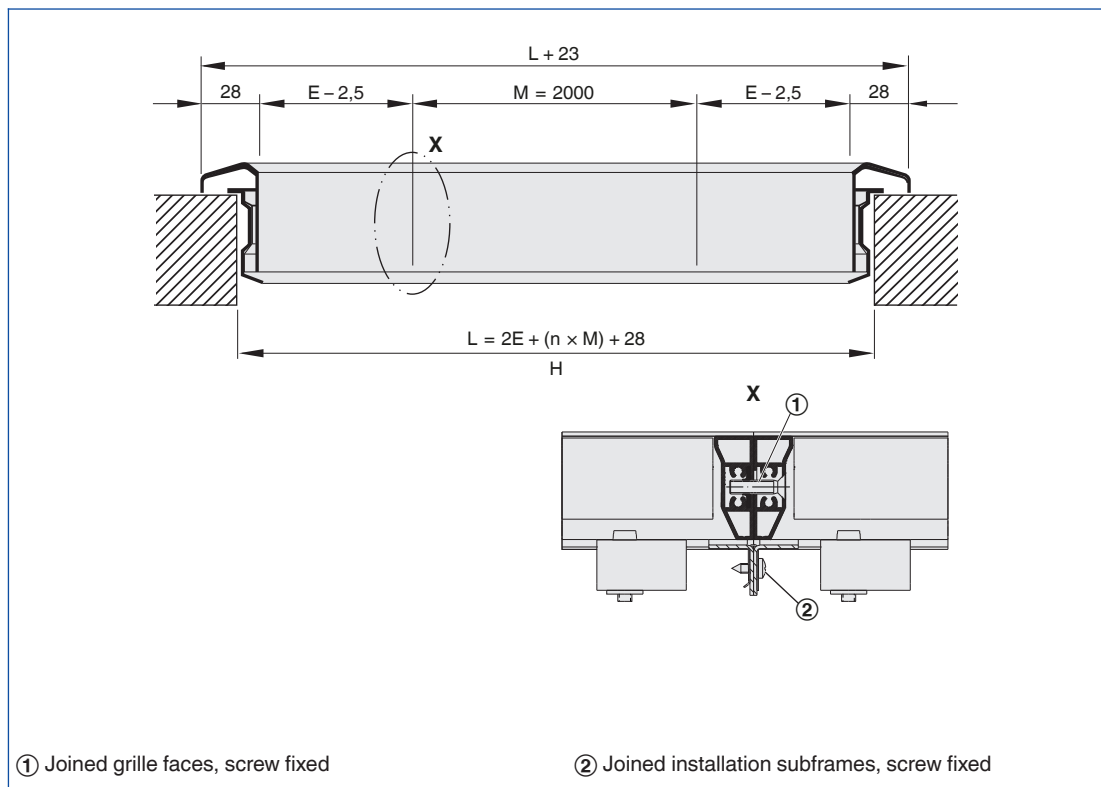
### AH, horizontal run sections with butt joint



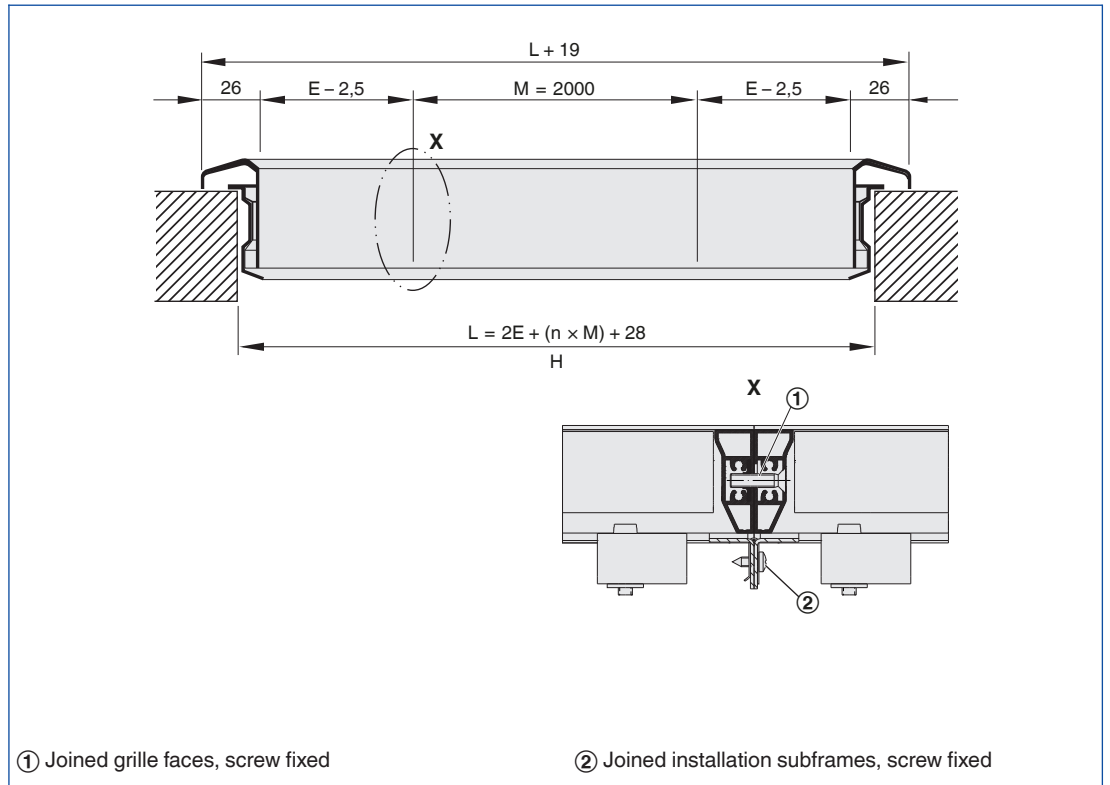
SL, horizontal run sections with butt joint



X-GRILLE Cover, horizontal run sections with butt joint

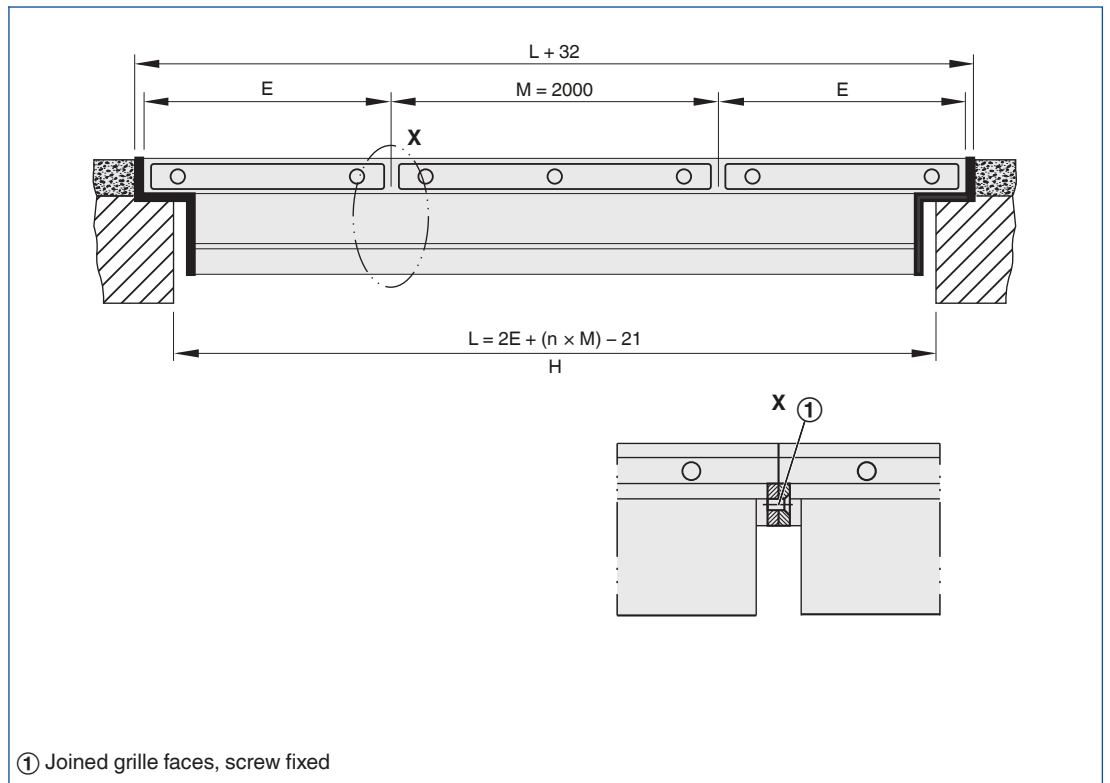


### X-GRILLE Basic, horizontal run sections with butt joint

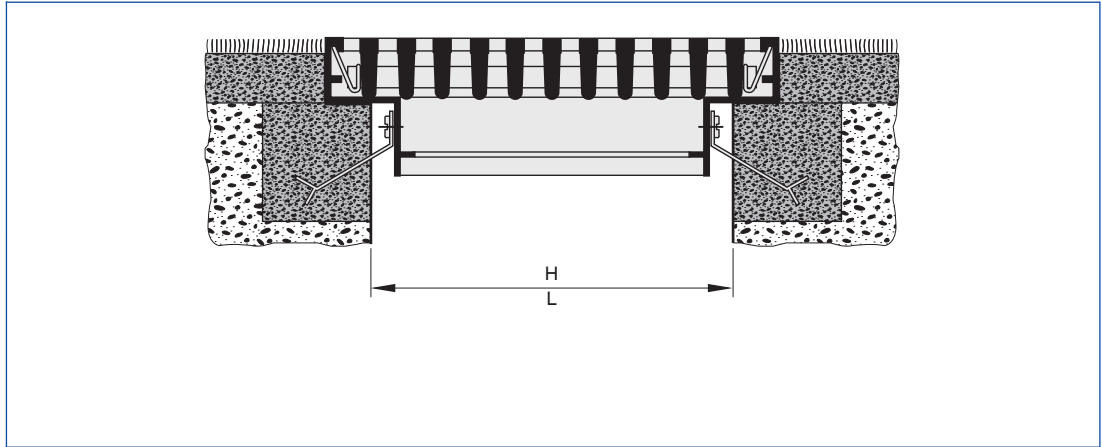


### Floor grille

### AF, horizontal run sections with butt joint



AF, fixing of the installation subframe



3

# Ventilation grilles

## Basic information and nomenclature

### Description

#### Volume flow rate balancing

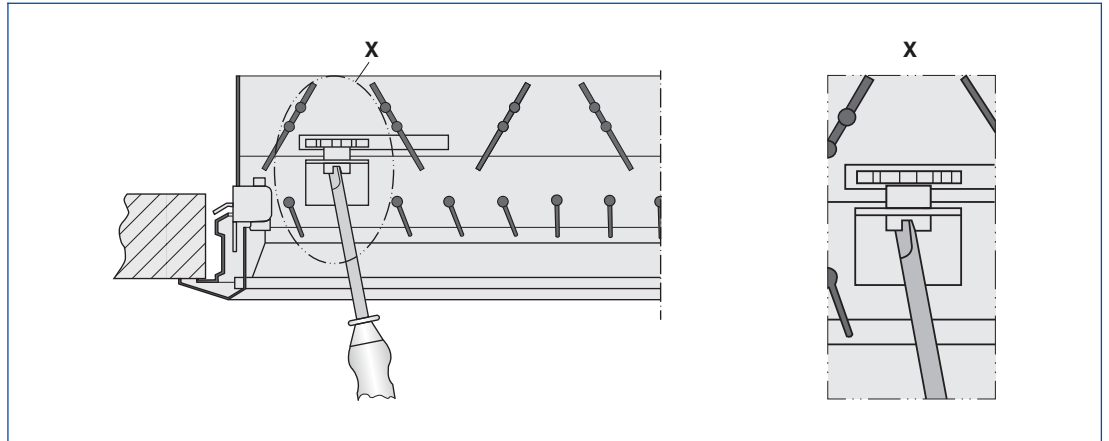
When several ventilation grilles are installed on the same duct, it may be necessary to balance the volume flow rates.

- 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

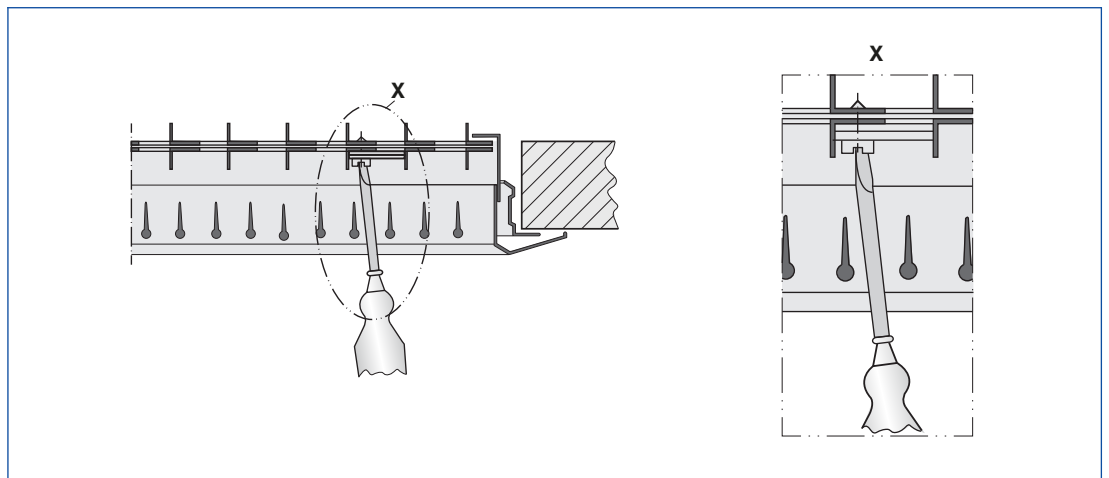
- Adjustable blades: Set the air control blades individually or together and depending on the local conditions
- D, DG: Air control blades, fitted at 90° to the front blades, can be adapted to the local conditions

#### Volume flow rate balancing -\*G



Attachments -AG, -DG and Types AGW, DGW

#### Volume flow rate balancing -S



Attachments -AS, -S and Type ASW