
Weather protection grilles



Weather protection grilles

APPLICATION

Weather protection grilles prevent rainwater from entering inlets and outlets in building façades either as part of an HVAC system or for natural ventilation of building complexes.

DESIGN DETAILS

The weather protection grilles consists of specially shaped, rain-deflecting horizontal louvres fastened to the inside of a surrounding frame. The louvres are spaced for an optimum balance between protection and pressure drop. The weather protection grilles are backed with a bird mesh.

All standard weather protection grilles have a non-perforated frame. Versions with a perforated frame must be specified when required.

Note

Because weather protection grilles can never guarantee absolute protection from water ingress (see the permeability diagram), there must be appropriate drainage in the connected ducting.

MATERIALS

Galvanized steel (Sv)	
Stainless steel 1.4301 (VA)	
Aluminium EN AW-6060 T66 (Alu)	
Copper (Cu) custom design	
Additional colours possible	
Galvanised steel weather protection grilles	WSG-E ...-Sv
Galvanised steel weather protection grilles with perforated frame	WSG-E ...-Sv1
Galvanised steel weather protection grilles, powder-coated	WSG-E ...-Sv-RAL
Extruded aluminium weather protection grilles	WSG-E ...-Alu
Aluminium weather protection grilles with perforated frame	WSG-E ...-Alu1
Stainless steel weather protection grilles	WSG-E ...-VA
Stainless steel weather protection grilles with perforated frame	WSG-E ...-VA1
Copper weather protection grilles	WSG-E ...-Cu
Copper weather protection grilles with perforated frame	WSG-E ...-Cu1

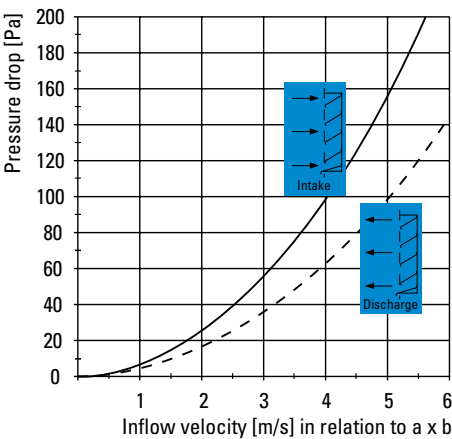


Weather protection grilles

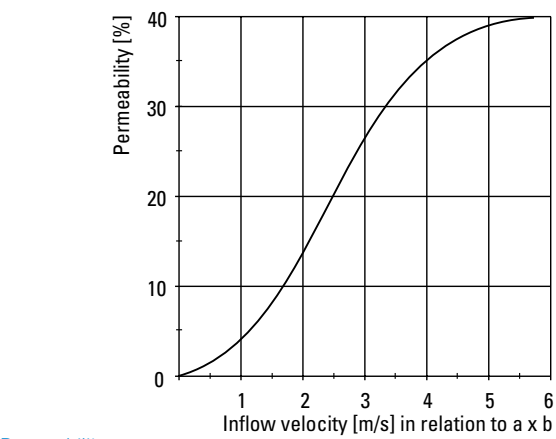
PERFORMANCE DATA

The recommended flow velocity in relation to w x h is 2-2.5 m/s.

Pressure drop

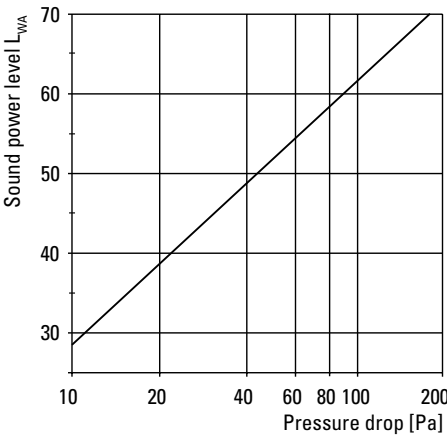


Permeability



Permeability

Flow noise



Correction K depends on face area a x b	
a x b in m²	K in dB
0.04	-14
0.06	-12
0.1	-10
0.2	-7
0.4	-4
0.6	-2
1	0
2	3
4	6
8	9

Correction for sound power level

AVAILABLE SIZES

Width

All sizes > 200 mm to 2,000 mm in one piece

Sizes > 2,000 mm in multiple sections

Height

All sizes > 200 mm to 2,500 mm in one piece

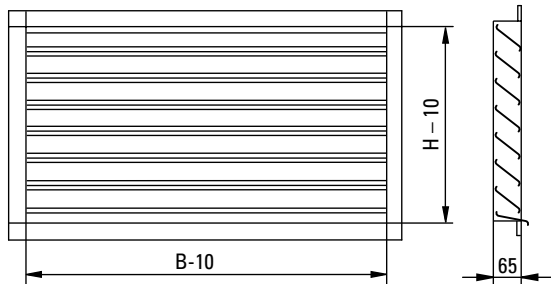
Sizes > 2,500 mm in multiple sections

Note

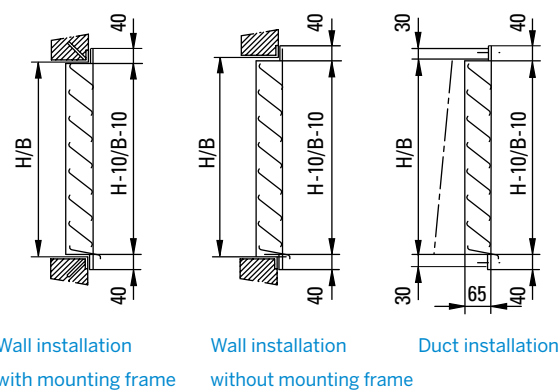
Weather protection grilles are always supplied in the nominal dimension minus 10 mm, so that they can be fitted directly in the duct.

For wall installation, a mounting frame (ER) can be supplied to fit the weather protection grilles.

DIAGRAM

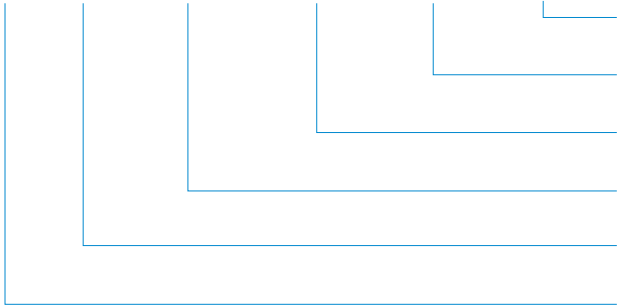


INSTALLED DIMENSIONS



TYPE CODES

WSG – E – 850 x 400 – Sv 1 – RAL 9006 – ER



- Accessories
- Colour code (as required)
- Material
- Nominal dimensions widthx height
- Design
- Component designation

TENDER SPECIFICATION TEXT

Weather protection grilles to protect from ingress of rain and foreign objects in the air inlets and outlets of HVAC systems, consisting of a surrounding frame with special, rain-deflecting horizontal louvres, backed with bird mesh.

(Enter the design and material as in the above documentation, according to the technical requirements).

Manufacturer

BerlinerLuft. Technik GmbH

EXAMPLE ORDER

Weather protection grilles, rectangular, size 850 x 400 mm
galvanised steel, perforated frame, RAL 9006, mounting frame

Order code

WSG-E-850 x 400-Sv1-RAL 9006-ER

Weather protection grilles – combinations



Weather protection grilles combinations

PRODUCT DESCRIPTION

Application

Weather protection grilles with multi-leaf or positive pressure dampers have a dual function in the inlets and outlets of HVAC systems. They prevent ingress of rainwater and foreign objects, and allow the air flow to be regulated or the vent to be closed when the system is not in operation.

Design details

Combined weather protection grilles with multi-leaf damper

This assembly consists of a weather protection grilles from series WSG/K-E-Sv or WSG/K-E-Alu and a multi-leaf damper from series JK-I-SS. The two components are fixed together using a specially shaped frame on the multi-leaf damper.

Combined weather protection grilles with positive pressure damper

This assembly consists of a shared frame that contains the basic elements of the WSG-E-Sv or WSG-E-Alu series and the ÜDK series.

Materials

galvanised steel, aluminium

The weather protection grilles is available in additional colours

DESIGNS AND DESIGNATIONS

Galvanised steel weather protection grilles/ galvanised steel multi-leaf damper	WSG/K-E-Sv – JK100
Galvanised steel weather protection grilles/ galvanised steel multi-leaf damper	WSG/K-E-Sv – JK165
Aluminium weather protection grilles/ galvanised steel multi-leaf damper	WSG/K-E-Alu – JK100
Aluminium weather protection grilles/ galvanised steel multi-leaf damper	WSG/K-E-Alu – JK165
Galvanised steel weather protection grilles/ steel/aluminium positive pressure damper	WSG/K-E-Sv – ÜDK
Aluminium weather protection grilles/ steel/aluminium positive pressure damper	WSG/K-E-Alu – ÜDK

PERFORMANCE DATA

The recommended inflow velocity in relation to a x b is 2....3 m/s, max. 5 m/s.

For further performance data and design details see:

Weather protection grilles

Multi-leaf dampers

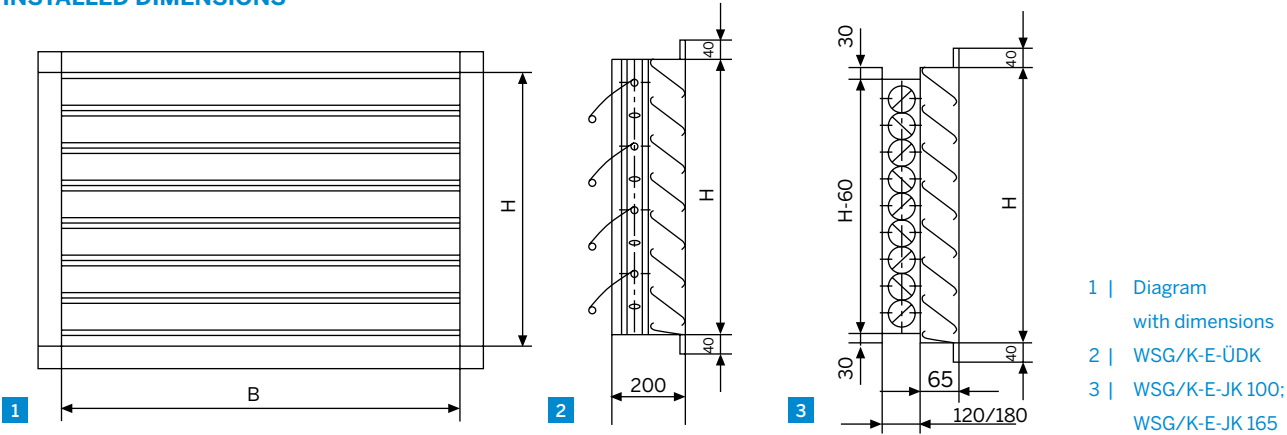
Positive pressure dampers



Weather protection grilles with multi-leaf damper (left),
Weather protection grilles with positive pressure damper (right)

Weather protection grilles – combinations

INSTALLED DIMENSIONS



AVAILABLE SIZES

Standard dimensions					
WSG/K-E-ÜDK		WSG/K-E-JK 100		WSG/K-E-JK 165	
Width	Height	Width	Height	Width	Height
200	160	200	270	300	240
300	240	300	370	400	405
400	320	400	470	500	570
600	480	500	570	600	730
700	560	600	670	700	900
800	640	700	770	800	1065
900	720	800	870	900	1230
1000	800	900	970	1000	1395
1100	880			1100	1560
1200	960			1200	1725
1300	1040			1300	1890
1400	1120			1400	2055
1500	1200			1500	
1600	1360			1600	
	1440				
	1520				
	1600				
	1680				
	1760				
	1840				
	1920				
	2000				

Note

The height always comes in increments depending on the damper spacing height.

JK 100 Spacing height 100 mm

JK 165 Spacing height 165 mm

ÜDK Spacing height 80 mm

The width comes in 100 mm steps, but other sizes up to the maximum stated width are possible. For wall installation, a galvanised steel mounting frame (ER) can be supplied to fit the weather protection grilles. A complete overview can be found in the latest BerlinerLuft. price list.

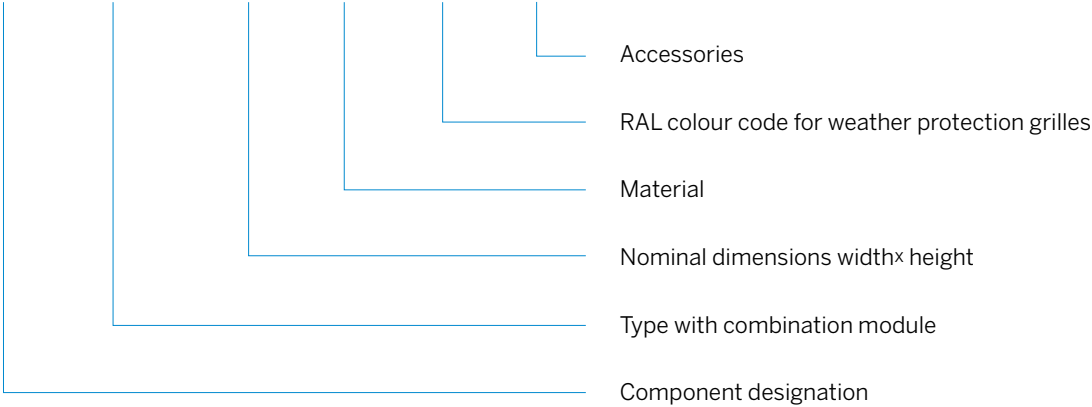
Widths and heights can be combined.

Do not exceed the maximum specified widths and heights.

A division may be necessary.

TYPE CODES

WSG/K – E-JK 100 – 600 x 670 – Sv – RAL 9006 – ER



TENDER SPECIFICATION TEXT

Combined weather protection grilles for protection from ingress of rain and foreign objects into the inlets and outlets of HVAC systems, with a multi-leaf or positive pressure damper to regulate air flow rate or close the vent when the system is not in operation. (Enter the design and material as in the aforementioned documentation, according to the technical requirements).

Manufacturer

BerlinerLuft. Technik GmbH

EXAMPLE ORDER

Combined weather protection grilles, multi-leaf damper spacing 100, size 600 x 670 mm, galvanised steel, surface treated in RAL 9006, with mounting frame

Order code

WSG/K-E-JK100-600 x 670-Sv-RAL 9006-ER

Special weather protection grilles



Special weather protection grilles

PRODUCT DESCRIPTION

Application

Special weather protection grilles are used when specially shaped HVAC inlets and outlets are required on building façades for aesthetic reasons. They prevent rainwater and dirt from entering the connected ductwork.

Design details

The special weather protection grille consists of specially shaped, rain-deflecting horizontal louvers fastened to the inside of a surrounding frame.

The louvers are spaced for an optimum balance between protection and pressure drop. The special weather protection grilles have a bird mesh on the back.

All standard weather protection grilles have a non-perforated frame. Versions with a perforated frame must be specified when required.

Note

Because special weather protection grilles can never guarantee absolute protection from water ingress (see the permeability diagram in the chapter on weather protection grilles), there must be appropriate drainage in the connected ducting.

Materials

- Galvanised steel
- Stainless steel 1.4301
- Aluminium
- Copper
- Additional colours possible

Designations

Galvanised steel special weather protection grilles	WSG/F... – Sv
Galvanised steel special weather protection grilles, powder-coated	WSG/F... – Sv RAL.....
Extruded aluminium special weather protection grilles	WSG/F... – Alu
Stainless steel special weather protection grilles	WSG/F... – VA
Copper special weather protection grilles	WSG/F... – Cu

Performance data

The recommended inflow velocity in relation to a x b is 2...3 m/s, max. 5 m/s.

For further performance data and design details see:

Weather protection grilles

Available sizes

Width (A) All sizes > 200 mm to 2,000 mm in one piece

Height (B) All sizes > 200 mm to 2,000 mm in one piece

Note

Weather protection grilles are always supplied in the nominal dimension minus 10 mm. For wall installation, a galvanised steel mounting frame (ER) can be supplied to fit the special weather protection grilles.



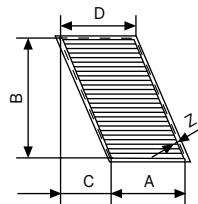
Special weather protection grilles WSG/F9

Special weather protection grilles

DESIGNS

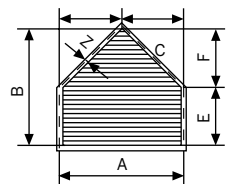
Rectangular type

WSG/F1



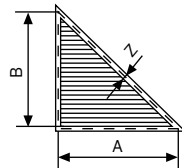
A
B
C
D
Z

WSG/F2



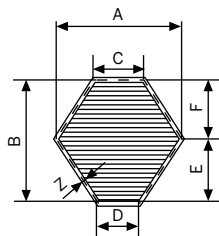
A
B
C
D
E
F
Z

WSG/F3



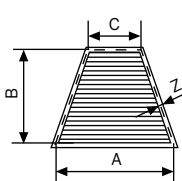
A
B
Z

WSG/F4



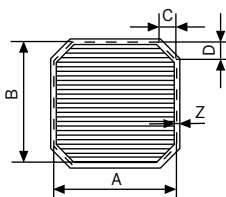
A
B
C
D
E
F
Z

WSG/F5



A
B
C
Z

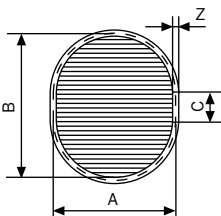
WSG/F6



A
B
C
D
Z

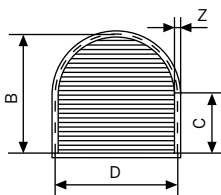
Round type

WSG/F7



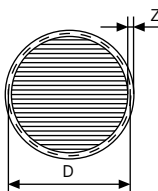
A
B
C
Z

WSG/F8



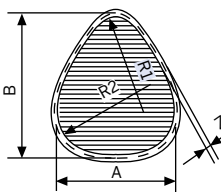
A
B
C
Z

WSG/F9



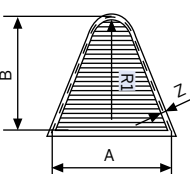
D
Z

WSG/F10



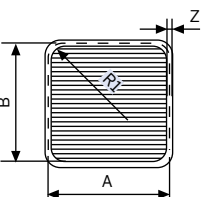
A
B
R1
R2
Z

WSG/F11



A
B
R1
Z

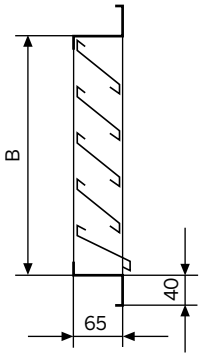
WSG/F12



A
B
R1
Z

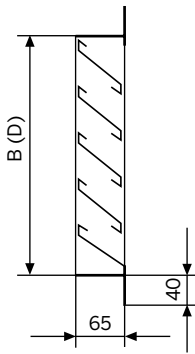
Other shapes are available on request
Standard dimension Z = 40 mm

INSTALLED DIMENSIONS



For all other dimensions see drawings F1 to F6

Rectangular type

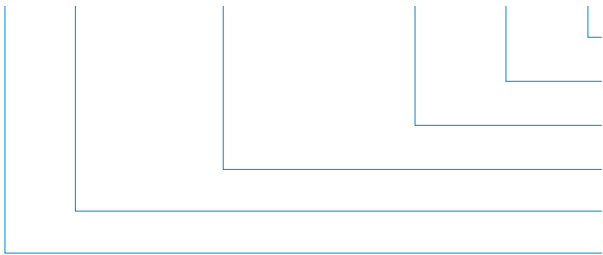


For all other dimensions see drawings F7 to F12

Round type

TYPE CODES

WSG/F – 1 – A, D400, B800, C100, Z40 – Sv – RAL 9006 – ER



- Accessories (as required)
- RAL colour code
- Material
- Nominal dimensions
- Design
- Component designation

TENDER SPECIFICATION TEXT

Special weather protection grilles to protect from ingress of rain and into the inlets and outlets of HVAC systems, consisting of a surrounding frame with special, rain-deflecting horizontal louvres, backed with bird mesh. (Specify types F1 to F12 as required according to the above documentation). Use the above dimensional drawings and enter the correct dimensions.

Other designs must be documented.

Manufacturer

BerlinerLuft. Pure Technik GmbH

EXAMPLE ORDER

Special weather protection grilles, type 1, size (as specified on drawing), galvanised steel, RAL 9006, with mounting frame

Ordercode

WSG/F-1-A, D400, B800, C100, Z40-Sv-RAL 9006-ER

Acoustic Weather protection grilles



Acoustic weather protection grilles

APPLICATION

Acoustic weather protection grilles (WSG/AK) prevent penetration of rainwater and dirt and also reduce noise transmitted by the inlets and outlets in building façades, either as part of an HVAC system or for natural ventilation of building complexes.

They significantly reduce noise compared to standard weather protection grilles (see diagram).

DESIGN DETAILS

The acoustic weather protection grilles (WSG/AK) consists of a sturdy housing with specially designed, rain-deflecting horizontal louvres. These louvres are filled with mineral wool, protected by a glass fibre fleece and a perforated sheet metal shell. There is a grille on the back of the WSG/AK to keep out larger objects such as leaves or small animals. The housing can be surface-mounted (type A) or recessed (type E). When there are very strict requirements for soundproofing, it is possible to increase the effect of the WSG/AK with a dual arrangement (type AD or ED).

To create lines of grilles along building façades, acoustically inactive dummy grilles (type AB or EB) with an identical appearance can be used.

When necessary, the WSG/AK can be equipped with an anti-icing system.

MATERIALS

Galvanised steel

Aluminium (AlMg3)

Stainless steel (1.4301)

Additional colours available on request

DESIGNS AND DESIGNATIONS

Design	Material	Designation
Single recessed grille (EE)	Galvanised steel	WSG/AK-EE-Sv
Single surface-mounted grille (AE)	Galvanised steel	WSG/AK-AE-Sv
Double recessed grille (ED)	Galvanised steel	WSG/AK-ED-Sv
Double surface-mounted grille (AD)	Galvanised steel	WSG/AK-AD-Sv
Recessed dummy grille (EB)	Galvanised steel	WSG/AK-EB-Sv
Surface-mounted dummy grille (AB)	Galvanised steel	WSG/AK-AB-Sv
Types as above	Aluminium	WSG/AK...-Alu
Types as above	Stainless steel	WSG/AK...-VA



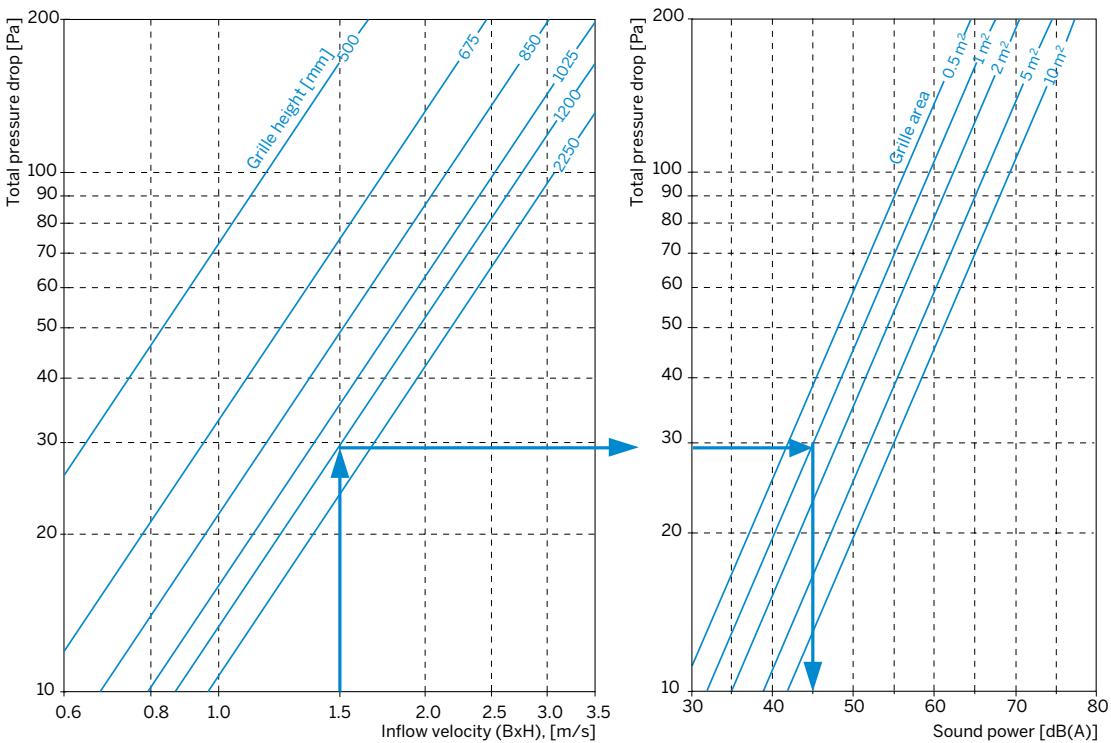
Acoustic weather protection grilles

Acoustic weather protection grilles

SINGLE GRILLES

Performance data

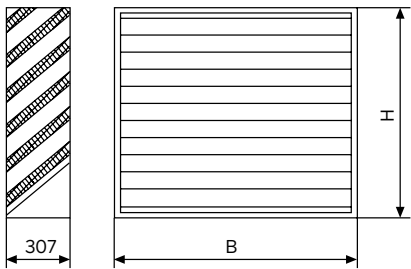
Octave frequency [Hz]	63	125	250	500	1k	2k	4k	8k
Insertion loss [dB]	2	5	6	9	14	15	14	13



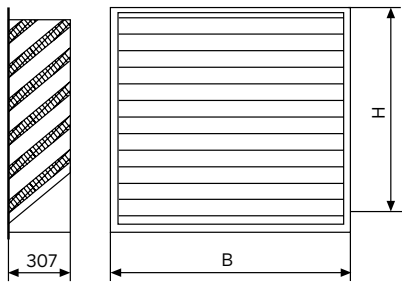
Dimensioning example

W = 800 mm, H = 1,200 mm → face area approx. 1 m²
 Inflow velocity: 1.5 m/s → Pressure drop 30 Pa
 → Sound power level 45 dB(A)

The OUTWIN design program can also be used for pressure drop and flow noise.



WSG/AK-EE – single recessed grille

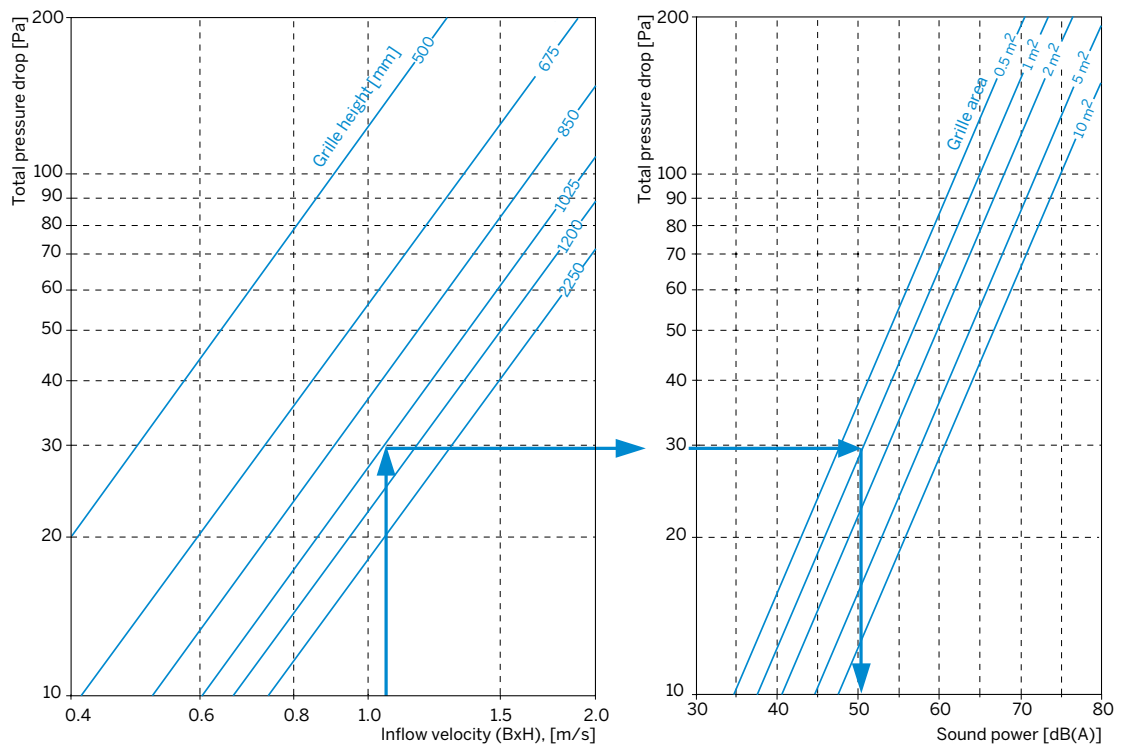


WSG/AK-EE – single surface-mounted grille

DOUBLE GRILLES

Performance data

Octave frequency [Hz]	63	125	250	500	1k	2k	4k	8k
Insertion loss [dB]	3	5	8	12	18	24	27	28



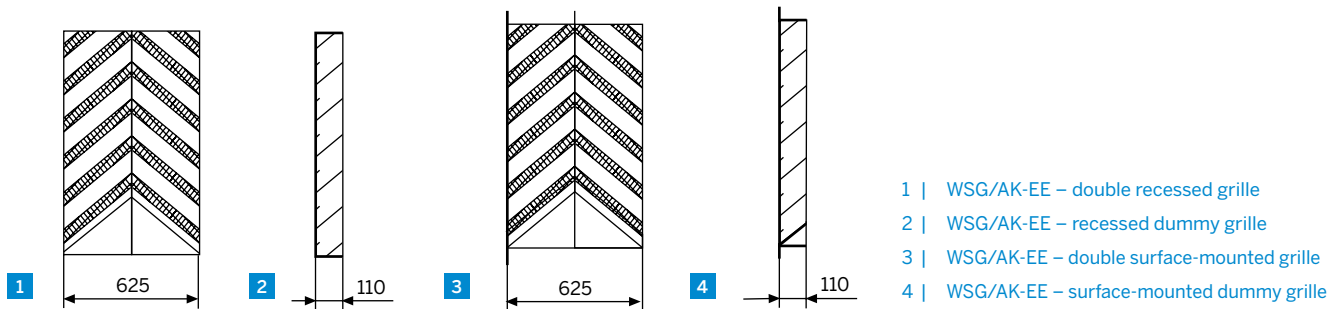
Dimensioning example

W = 1,000 mm, H = 1025 mm → face area approx. 1 m²

Inflow velocity: 1.1 m/s → Pressure drop 30 Pa

→ Sound power level 50 dB(A)

The OUTWIN design program can also be used for pressure drop and flow noise.



Acoustic weather protection grilles

AVAILABLE SIZES

The louvre spacing of the WSG/AK is 175 mm. The installed depth is 307 mm.

Width	All sizes > 300 mm to 2,500 mm possible in one piece	
Height	min. height	– 500 mm
	max. height	– 2,250 mm

Note

The overall height of the acoustic weather protection grilles is adjusted according to the louvre spacing (175 mm).

The joints between WSG/AKs installed in rows must be covered by metal strips.

FREE CROSS SECTIONS AND WEIGHTS

The weights are reference values for the basic version. (WSG/AK-EE)

Height H [mm]	Technical data Weights		Width B [mm]											
			300	500	700	900	1100	1300	1500	1700	1900	2100	2300	2500
500	Free cross section Flow rate ¹	m² m³/h	0.018 200	0.030 330	0.043 460	0.055 590	0.067 720	0.079 850	0.091 985	0.103 1115	0.115 1250	0.128 1380	0.140 1510	0.152 1640
	Steel weight Aluminium weight	kg kg	12 5	16 6	20 8	24 9	28 11	31 13	35 14	39 16	43 18	47 19	51 21	55 22
675	Free cross section Flow rate ¹	m² m³/h	0.036 400	0.061 655	0.085 920	0.109 1180	0.134 1445	0.158 1700	0.182 1970	0.207 2230	0.231 2490	0.255 2750	0.279 3020	0.304 3280
	Steel weight Aluminium weight	kg kg	16 6	22 9	27 11	33 14	39 16	44 18	50 21	56 23	61 26	67 28	73 30	78 33
850	Free cross section Flow rate ¹	m² m³/h	0.055 590	0.091 985	0.128 1380	0.164 1770	0.200 2165	0.237 2560	0.273 2950	0.310 3345	0.346 3740	0.383 4130	0.419 4530	0.456 4920
	Steel weight Aluminium weight	kg kg	21 8	28 12	35 15	43 18	50 21	57 24	65 27	72 31	79 34	87 37	94 40	101 43
1025	Free cross section Flow rate ¹	m² m³/h	0.073 790	0.122 1310	0.170 1840	0.219 2360	0.267 2890	0.316 3410	0.365 3940	0.413 4460	0.462 4985	0.510 5510	0.559 6040	0.608 6560
	Steel weight Aluminium weight	kg kg	25 10	34 14	43 18	52 22	61 26	70 30	79 34	88 38	97 42	106 46	115 50	124 54
1200	Free cross section Flow rate ¹	m² m³/h	0.091 985	0.152 1640	0.213 2300	0.273 2950	0.334 3610	0.395 4265	0.456 4920	0.516 5580	0.577 6230	0.638 6890	0.699 7545	0.759 8200
	Steel weight Aluminium weight	kg kg	30 12	40 17	51 22	62 26	73 31	83 36	94 40	105 45	115 50	126 55	137 59	147 64

¹ Flow rate at intake velocity of 3 m/s in the free cross section

Height H [mm]	Technical data Weights		Width B [mm]											
			300	500	700	900	1100	1300	1500	1700	1900	2100	2300	2500
1375	Free cross section	m ²	0.109	0.182	0.255	0.328	0.401	0.474	0.547	0.620	0.693	0.765	0.838	0.911
	Flow rate ¹	m ³ /h	1180	1970	2760	3540	4330	5120	5900	6690	7840	8270	9050	9840
	Steel weight	kg	34	47	59	71	84	96	109	121	133	146	158	170
	Aluminium weight	kg	14	20	25	31	36	42	47	52	58	63	69	74
1550	Free cross section	m ²	0.128	0.213	0.298	0.383	0.468	0.553	0.638	0.723	0.808	0.893	0.978	1.063
	Flow rate ¹	m ³ /h	1380	2300	3215	4130	5050	5970	6890	7810	8730	9645	10560	11480
	Steel weight	kg	39	53	67	81	95	109	123	137	151	165	179	193
	Aluminium weight	kg	16	22	29	35	41	47	54	60	66	72	79	85
1725	Free cross section	m ²	0.146	0.243	0.340	0.437	0.535	0.632	0.729	0.826	0.923	1.021	1.118	1.215
	Flow rate ¹	m ³ /h	1575	2525	3675	4725	5775	6825	7875	8925	9975	11020	12070	13120
	Steel weight	kg	43	59	75	91	106	122	138	153	169	185	201	216
	Aluminium weight	kg	18	25	32	39	46	53	60	67	74	81	88	95
1900	Free cross section	m ²	0.164	0.273	0.383	0.492	0.601	0.711	0.820	0.929	1.039	1.148	1.258	1.367
	Flow rate ¹	m ³ /h	1770	2950	4130	5315	6495	7675	8860	10040	11220	12400	13580	14760
	Steel weight	kg	48	65	83	100	118	135	152	170	187	205	222	239
	Aluminium weight	kg	20	28	35	43	51	59	67	74	82	90	98	106
2075	Free cross section	m ²	0.182	0.304	0.425	0.547	0.668	0.790	0.911	1.033	1.154	1.276	1.397	1.519
	Flow rate ¹	m ³ /h	1970	3280	4590	5900	7220	8530	9845	11155	12460	13780	15090	16400
	Steel weight	kg	52	71	91	110	129	148	167	186	205	224	243	262
	Aluminium weight	kg	22	30	39	47	56	65	73	82	90	99	107	116
2250	Free cross section	m ²	0.200	0.334	0.468	0.601	0.735	0.869	1.002	1.136	1.270	1.403	1.537	1.671
	Flow rate ¹	m ³ /h	2165	3610	5050	6495	7940	9380	10830	12270	13710	15150	16600	18040
	Steel weight	kg	57	78	98	119	140	161	182	202	223	244	265	285
	Aluminium weight	kg	24	33	42	52	61	70	80	89	98	108	117	126

¹ Flow rate at intake velocity of 3 m/s in the free cross section

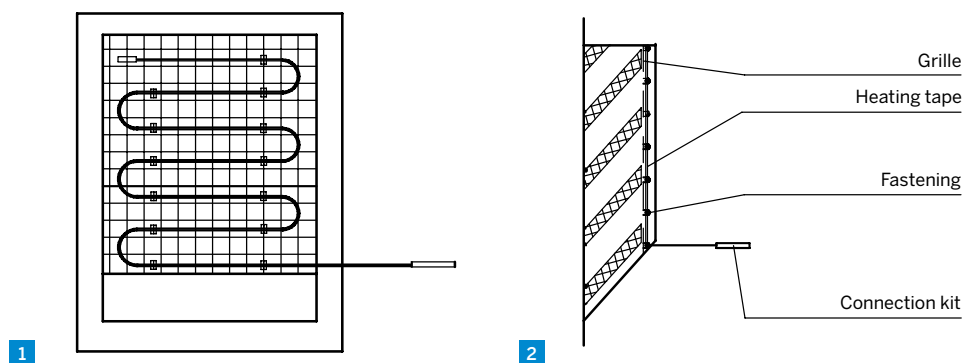
Acoustic weather protection grilles

ANTI-ICING SYSTEM (ES)

At temperatures below +2 °C and an air humidity above 60% (for example in fog), there is a risk of the grille icing up. To ensure operation of the HVAC system, the grille of the acoustic weather protection grilles can be electrically heated. This is done using special temperature and UV-resistant heating tape on the grille structure.

For fully automatic control of the anti-icing system, there must be an ice sensor or another combination of a thermostat and hygostat.

The control unit must be selected and installed by a specialist electrical contractor and is not supplied with the acoustic weather protection grilles.



1 | Rear view

2 | Side cross section

TECHNICAL DATA

65° anti-icing tape

Rated voltage:	230V
Heating power:	11W/m
Installed power:	approx. 110 W/m²
Rated temperature:	65°
Earthed braiding:	Galvanised copper
Outer jacket:	Polyolefin
Watertight:	Yes
Width:	14 mm
Thickness:	6 mm
Minimum bending radius:	32 mm
CE label:	Yes
Required power switch fuse:	16 A

Connection kit

Connection kit for preparing a heating tape for connection, consisting of:

Heating tape plug	
Heating tape socket	
Connection cable	2 m
Watertight:	Yes
CE label:	Yes

MOUNTING FRAME/MASONRY ANCHORS

A suitable mounting frame and masonry anchors are supplied on request.

NOTES ON CONNECTION

The braiding of the heating tape must be earthed.

The WSG/AK must be included in this protection.

There must be a residual current device (RCD).

There must be protection from atmospheric discharge (general lightning protection requirements).

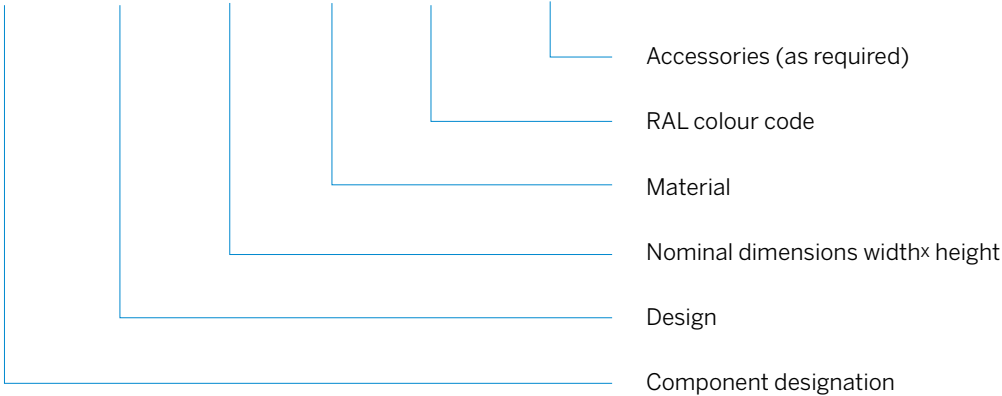
VDE and EVU guidelines must be observed.

Installation may only be carried out by a specialist electrical contractor.

Acoustic weather protection grilles

TYPE CODES

WSG/AK – EE – 900 x 1200 – Sv – RAL 9006 – ES – ER



TENDER SPECIFICATION TEXT

Acoustic weather protection grilles to prevent ingress of rain-water and dirt and to reduce noise in the inlets and outlets of HVAC systems, consisting of a sturdy frame with rain-deflecting, sound-absorbing horizontal louvres.

Material:

Design:

Colour: RAL

Dimensions:

(Select as required according to the above documentation)

As necessary

Grille with electric anti-icing system

Heating power: 11 W/m

Voltage: 230 V

Mounting frame ER, masonry anchors

Manufacturer

BerlinerLuft. Technik GmbH

EXAMPLE ORDER

Acoustic weather protection grilles, as single recessed grille, size 900 × 1,200, galvanised steel, surface treated in RAL 9006, with anti-icing system and mounting frame.

Order code

WSG/AK-EE-900x1200-Sv-RAL 9006-ES-ER

Weather protection grilles for pitched roofs



Weather protection grilles for pitched roofs

APPLICATION

Weather protection grilles for pitched roofs provide a visual separation and – in combination with a specially designed structure – discharge water from HVAC intakes and outlets on roofs.

DESIGN DETAILS

Inlet or outlet grilles for pitched roofs are a specially designed custom solution for individual applications. The visible grille surface and water trap form a functional unit. The water trap is a watertight assembly with a sturdy support frame for fastening to the rafters. Horizontal louvres are fitted in the support frame and are backed by a protective grille.

The angle of the weatherproof louvres is selected according to the roof pitch to minimise pressure drop and flow noise, and to maximise privacy.

For caulking on the roof, the support frame has water checks down both sides and a lead apron at the bottom. The design depends on the roof pitch (Dn) and the space available in the roof.

The connection between the ducting and the water trap can be individually designed and modified according to the space available. To drain off the water (type A), there is a 1.5" connector with male thread. When necessary, the WSG/SD can be equipped with an anti-icing system.

Note

Weather protection grilles for pitched roofs provide protection from water ingress and must therefore always be fitted with a reliable water trap.



Weather protection grilles
for pitched roof

MATERIALS

Base material:	Galvanised sheet steel Other materials on request
Welds:	Preserved with high-quality cold dip galvanisation
Front:	Painted as specified RAL 7015 slate grey RAL 8004 copper brown RAL 8012 red brown Special colours
Lead apron:	Natural (lead grey)
or colour similar to:	RAL 7021 black grey RAL 8004 copper brown RAL 8012 red brown (no special colours)

ROOF PITCH (α°)

To design the system, the exact roof pitch must be specified.

Definition

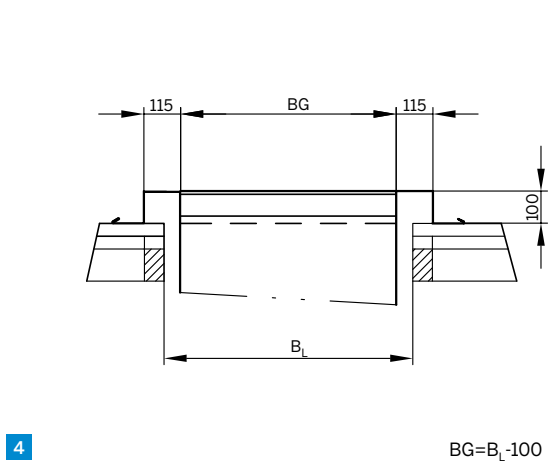
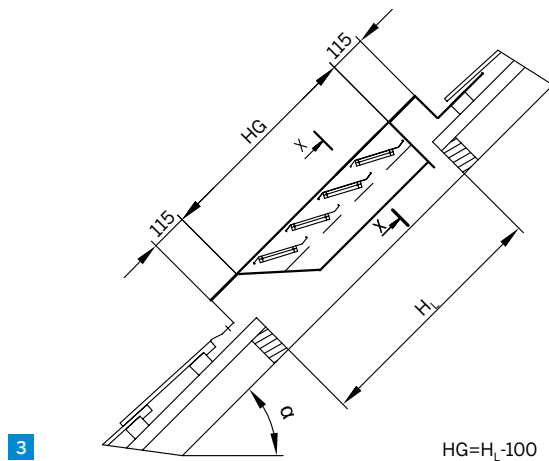
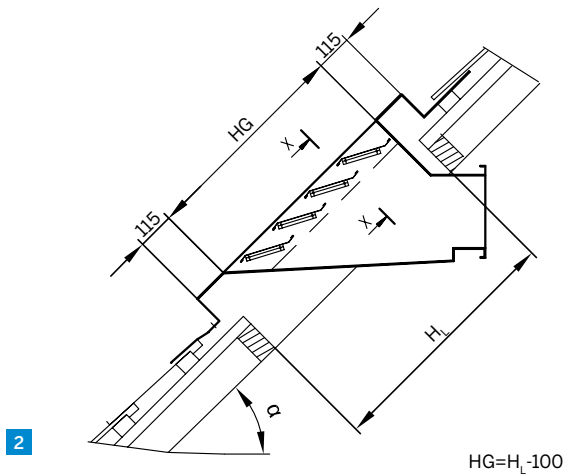
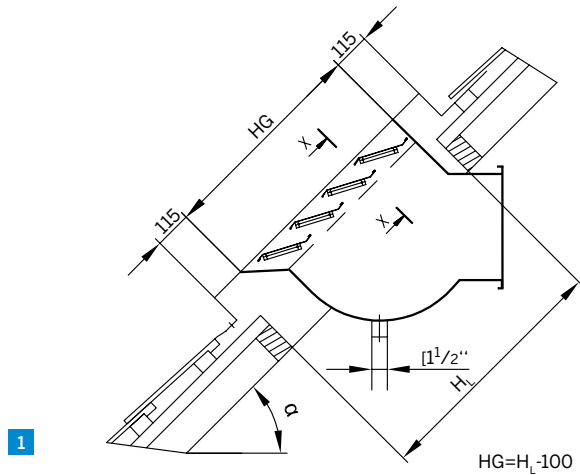
The roof pitch is the angle between the roof and the horizontal line of the building. It is stated as an angle in degrees ($^\circ$).

DESIGNS AND DESIGNATIONS

Designation	Design	Notes on installation
WSG/SD – A	A	Required for roof pitches $< 40^\circ$ Water discharge via integrated water trap in the building
WSG/SD – B	B	Can be used for roof pitches $> 40^\circ$ Natural water run-off via roof surface Water trap with rainwater edge
WSG/SD – C	C	No protection against water ingress. Secondary measures must be taken by the customer.

Weather protection grilles for pitched roofs

INSTALLED DIMENSIONS



- 1 | Type A – with water trap and internal water run-off
- 2 | Type B – with water trap and external water run-off
- 3 | Type C – without water trap
- 4 | Sectional view X-X

KEY

B_L = clear width (between rafters)
H_L = clear height (between trimming)
BG = BL-100 = clear width of WSG/SD
HG = HL-100 = clear height of WSG/SD
a° = roof pitch in degrees

AVAILABLE DIMENSIONS (ONE-PIECE)

Grilles with clear width (BG) 600 to 1,500 mm

Grilles with clear height (HG) 600 to 2,000 mm

Special requirements such as undivided widths with partitioned water traps must be checked with our design department.

FREE CROSS SECTIONS AND WEIGHTS

Specifications for free cross sections apply to a roof pitch of 46°-55° and must be multiplied by a correction factor for other roof pitches.

The stated weights are reference values only, with a water trap in idealised form included, and may have to be recalculated depending on the specific design of the water trap.

Height HL [mm]	Values for Dn α 46°-55°		Width BL [mm]									
			600	700	800	900	1000	1100	1200	1300	1400	1500
600	Free cross section ¹	m²	0.14	0.17	0.20	0.22	0.25	0.28	0.31	0.34	0.36	0.39
	Flow rate ²	m³/h	1880	2265	2645	3020	3400	3775	4155	4530	4910	5285
	Steel weight ³	kg	51	54	58	61	65	69	72	76	79	83
800	Aluminium weight ³	kg	19	20	22	23	24	26	27	28	30	31
	Free cross section ¹	m²	0.17	0.21	0.24	0.28	0.31	0.35	0.38	0.42	0.45	0.49
	Flow rate ²	m³/h	2360	2830	3300	3775	4275	4720	5190	5660	6135	6600
1000	Steel weight ³	kg	64	68	72	76	80	84	88	92	96	100
	Aluminium weight ³	kg	24	26	27	29	30	32	33	34	36	37
	Free cross section ¹	m²	0.21	0.25	0.29	0.34	0.38	0.42	0.46	0.50	0.55	0.59
1200	Flow rate ²	m³/h	2830	3400	3960	4530	5100	5660	6230	6800	7360	7930
	Steel weight ³	kg	79	84	88	92	97	101	105	110	114	118
	Aluminium weight ³	kg	30	31	33	35	36	38	39	41	43	44
1400	Free cross section ¹	m²	0.28	0.34	0.39	0.45	0.50	0.56	0.62	0.67	0.73	0.78
	Flow rate ²	m³/h	3775	4530	5285	6040	6800	7550	8300	9060	9820	10570
	Steel weight ³	kg	99	104	109	113	118	123	127	132	137	141
1600	Aluminium weight ³	kg	37	39	41	43	44	46	48	50	51	53
	Free cross section ¹	m²	0.31	0.38	0.44	0.50	0.57	0.63	0.69	0.76	0.82	0.88
	Flow rate ²	m³/h	4250	5100	5950	6800	7645	8500	9350	10200	11050	11900
1800	Steel weight ³	kg	118	123	128	133	138	143	148	153	158	163
	Aluminium weight ³	kg	44	46	48	50	52	53	55	57	59	61

¹ Correction factors for free cross sections and flow rates with and without anti-icing system

² Flow rate for Dn α = 46°-55° Dn

³ Weight (reference value) for standard sheet thickness in steel and aluminium versions (other materials on request)

Weather protection grilles for pitched roofs

Height HL [mm]	Values for Dn α 46°-55°		Width BL [mm]									
			600	700	800	900	1000	1100	1200	1300	1400	1500
1600	Free cross section ¹	m²	0.38	0.46	0.54	0.62	0.69	0.77	0.85	0.92	1.00	1.08
	Flow rate ²	m³/h	5200	6230	7270	8300	9350	10380	11420	12460	13500	14535
	Steel weight ³	kg	141	146	151	157	162	167	173	178	184	189
1800	Aluminium weight ³	kg	53	55	57	59	61	63	65	67	69	71
	Free cross section ¹	m²	0.42	0.50	0.59	0.67	0.76	0.84	0.92	1.01	1.09	1.17
	Flow rate ²	m³/h	5660	6800	7930	9060	10200	11330	12460	13600	14720	15860
2000	Steel weight ³	kg	162	167	173	179	185	190	196	202	208	213
	Aluminium weight ³	kg	61	63	65	67	69	71	74	76	78	80
	Free cross section ¹	m²	0.45	0.55	0.64	0.73	0.82	0.91	1.00	1.09	1.18	1.27
	Flow rate ²	m³/h	6135	7360	8590	9820	11040	12270	13500	14730	15950	17180
	Steel weight ³	kg	184	191	197	203	209	215	221	227	233	239
	Aluminium weight ³	kg	69	71	74	76	78	81	83	85	87	90

¹ Correction factors for free cross sections and flow rates with and without anti-icing system

² Flow rate for Dn α = 46°-55°

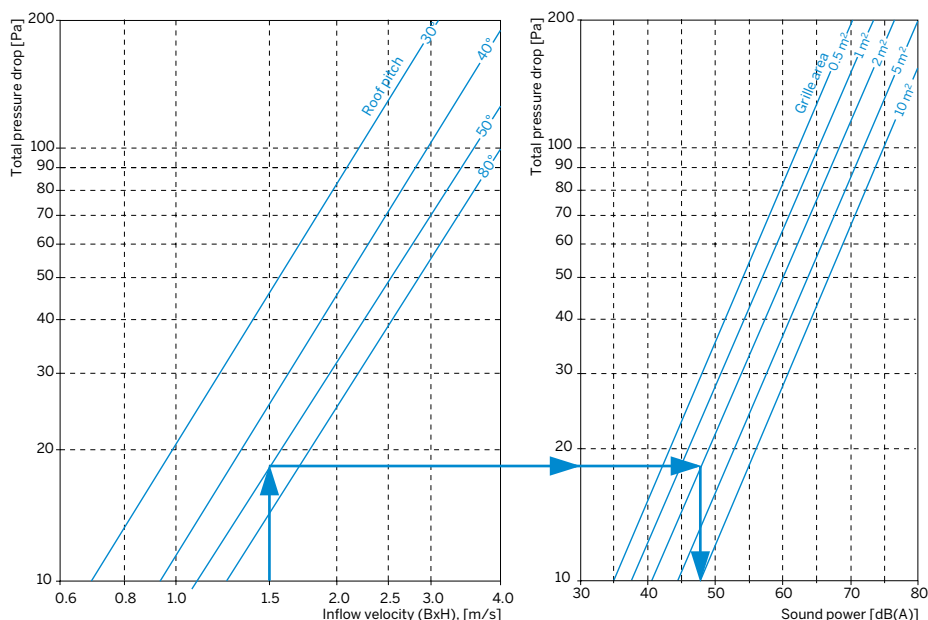
³ Weight (reference value) for standard sheet thickness in steel and aluminium versions (other materials on request)

CORRECTION FACTORS FOR FREE CROSS SECTIONS AND FLOW RATE

The free cross sections and volume flows in the above table have to be multiplied with the appropriate correction factor for the roof pitch.

Roof pitch (α)	< 30°	30°-35°	36°-45°	46°-55°	56°-65°	66°-75°	76°-80°
Correction factor (k) without anti-icing system	On request	0.57	0.79	1	1.20	1.31	1.42
Correction factor (k) with anti-icing system	On request	0.48	0.67	0.85	1	1.11	1.21

PRESSURE DROP AND FLOW NOISE



DIMENSIONING EXAMPLE

BL = 1,000 mm, HL = 2,000 mm, roof pitch 50°
 Flow rate 11,000 m³/h
 Face area 2 m², inflow velocity 1.5 m/s

Diagram

1.5 m/s → Overall pressure drop 18 Pa
 → Sound power level 47 dB(A)

WATER SEPARATION EFFICIENCY

Weather protection grilles for pitched roofs cannot completely trap all water. The most suitable type has to be chosen for the roof pitch and water drainage options (see the type table).

Type A grilles have a water drain outlet with a 1.5" male thread. The maximum possible rainfall must be calculated for the location. If necessary, the cross section of the drain outlet can be modified for the amount of rainfall.

When type B ($\alpha > 40^\circ$) is used, there is no need for an additional drain to discharge rainwater.

ACCESSORIES

Anti-icing system (ES)

On request, an electrically heated anti-icing system can be provided to prevent the free cross section on the grille becoming clogged by ice in winter.
 (See the section on the anti-icing system)

Insulated water trap (iso.)

To prevent condensation when the temperature falls below dew point, the water trap can be insulated as necessary.

Inspection panel (RD)

Type A always has an inspection panel on the side of the water trap for removing dirt from the water inlet.

Duct connection

Connections on the sides for round or square ducts are available on request.

Lead apron

All weather grilles in the WSG/SD range have a soft lead apron (delivered separately) on the bottom of the support frame in the standard colour grey. (For other colours, see page 159)

Weather protection grilles for pitched roofs

ANTI-ICING SYSTEM (ES)

At temperatures below +2 °C and an air humidity above 60% (for example in fog), there is a risk of the intake louvres and grille icing up. To ensure operation of the HVAC system, the grille can be electrically heated. This is done using special temperature- and UV-resistant heating tape on the grille.

For fully automatic control of the anti-icing system, there must be an ice sensor or another combination of a thermostat and hygostat.

The control unit must be selected and installed by a specialist electrical contractor and is not supplied with the pitched roof weather protection grilles.

TECHNICAL DATA

65° anti-icing tape

Rated voltage:	230 V
Heating power:	27 W/m
Installed power:	approx. 270 W/m²
Rated temperature:	65°
Earthed braiding:	Galvanised copper
Outer jacket:	Polyolefin
Watertight:	Yes
Width:	14 mm
Thickness:	6 mm
Minimum bending radius:	32 mm
Required power switch fuse:	16 A

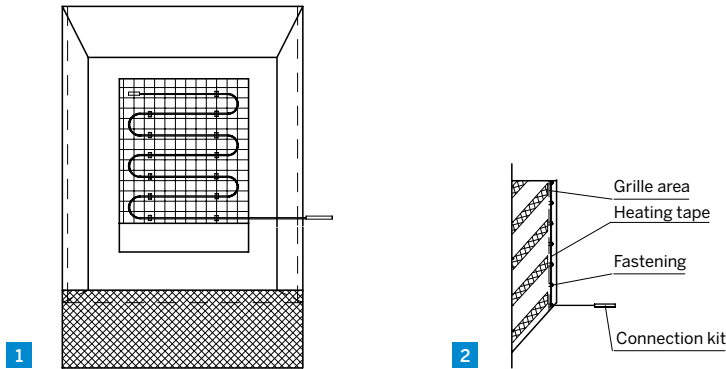
Connection kit

Connection kit for preparing a heating tape for connection, consisting of:

Heating tape plug	
Heating tape socket	
Connection cable	2 m
Watertight:	Yes
CE label:	Yes

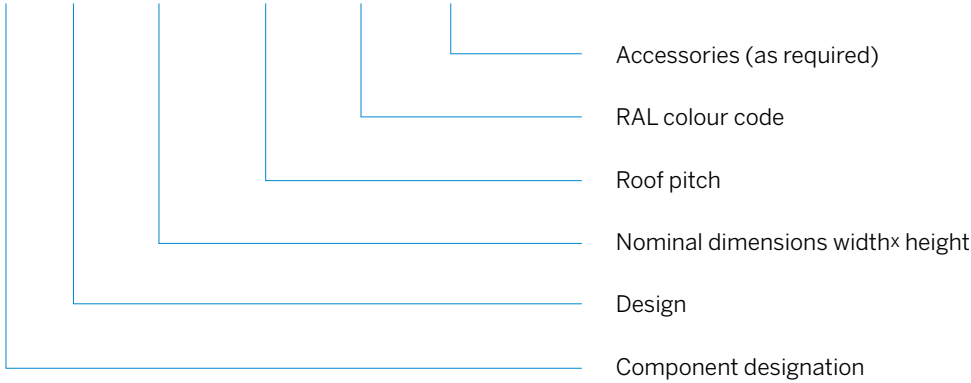
Notes on connection

- The braiding of the heating tape must be earthed.
- The WSG/SD must be included in this protection.
- There must be a residual current device (RCD).
- There must be protection from atmospheric discharge (general lightning protection requirements).
- VDE and EVU guidelines must be observed.
- Installation may only be carried out by a specialist electrical contractor.



TYPE CODES

WSG/SD – A – 1000 x 1500 – 35° – RAL 8004 – ES – iso – RD



TENDER SPECIFICATION TEXT

Weather protection grilles for pitched roof in type A (or B), consisting of a surrounding support frame with horizontal louvres, backed with a grille, as well as an integrated water trap to collect and drain rainwater. Support frame designed so that the entire assembly can be fastened to the rafter. The support frame has water checks down both sides and is designed so that a lead apron can be attached at the bottom.

Additional requirements

Insulated trap, inspection panel, anti-icing system and front section colours must be added and formulated as required according to the technical documentation.

The customer must provide the manufacturer with the individual details of the roof in order to correctly dimension the WSG/SD. Before manufacturing begins, the design must be approved by the customer.

Manufacturer

BerlinerLuft. Technik GmbH

EXAMPLE ORDER

Weather protection grilles for inclined roof, type A (or B)

Nominal size 1,000 x 1,500, roof pitch 35°, front painted in RAL 8004, with anti-icing system, insulated water trap and inspection panel

Order code

WSG/SD-A-1000x1500-35-RAL 8004-ES-iso-RD