External weather louvres
Type WG-JZ

Combination with a multileaf damper

Combinations of external weather louvres and multileaf dampers as a protection against the direct ingress of rain, leaves and birds, and for shut-off and control

- Maximum width of 2000 mm, maximum height of 1995 mm
- Low differential pressure due to aerofoil blades
- Low air-regenerated noise
- All aerodynamic data is measured in aerodynamics and acoustics laboratories
- Aerofoil parallel or opposed hollow blades
- Casing air leakage to EN 1751, class C
- Available in standard sizes and many intermediate sizes
- Pre-assembled combination, hence fast and easy to install

Optional equipment and accessories

- Installation subframe
- Insect screen
- Powder-coated or anodised surface
- Actuators: Open/Close actuators, modulating actuators

Application

Application

- Combinations of Type WG external weather louvres and Type JZ multileaf dampers for protecting fresh air and exhaust air openings in air conditioning systems
- Protection against the direct ingress of rain as well as against leaves and birds
- Recommended face velocity for fresh air openings: 2 – 2.5 m/s max.
- As an acting element in the volume flow and pressure control
- For shutting off ducts and openings in walls
- Parallel action blades are preferably used for opening/closing
- Opposed action blades are due to their characteristics preferably used for variable operation

Special characteristics

- Any intermediate sizes within the standard size range are available
- Low installation effort on site since external weather louvre and multileaf damper are factory combined and assembled
- Aerofoil parallel or opposed hollow blades
- Operating temperature –20 – 100 °C
- For very large sizes, several combinations can be arranged side by side or on top of each other
- Low-maintenance, robust construction
- Low differential pressure and low noise due to aerofoil blades

Nominal sizes

- B: 200 – 2000 mm, in increments of 1 mm
- H: 180, 345, 510, 675, 840, 1005, 1170, 1335, 1500, 1665, 1830, 1995 mm (intermediate sizes 183 – 1998 in increments of 1 mm, except for standard size H – 1 mm, H + 1 mm, H + 2 mm)
- Any combination of B × H

Description

Variants

- WG-JZ-S: External weather louvre and multileaf damper with opposed blade action, both made of galvanised sheet steel
- WG-JZ-P: External weather louvre and multileaf damper with parallel blade action, both made of galvanised sheet steel
- WG-AL-JZ-S: External weather louvre made of aluminium and multileaf damper with opposed blade action made of galvanised sheet steel
- WG-AL-JZ-P: External weather louvre made of aluminium and multileaf damper with parallel blade action made of galvanised sheet steel

Construction

Cover grille

- Wire mesh
- 1: With insect screen, galvanised steel (only WG-JZ)
- 2: With wire mesh, stainless steel (only WG-AL-JZ)
- 3: With insect screen and wire mesh, stainless steel (only WG-AL-JZ)

Border

- Border fixing holes
- U: Without fixing holes

Parts and characteristics

- Border
- Regular blades and bottom blade
- Wire mesh
- Optional insect screen
- Visible mullion or stabilising mullion at the rear, from B = 1385 mm
- Shut-off damper

- Blades with external linkage
- Drive arm

Attachments

- Quadrant stays and limit switches: Quadrant stays to adjust the damper blades (stepless adjustment) and for capturing the end positions
- Open/Close actuators: Actuators for opening and closing multileaf dampers
- Modulating actuators: Actuators for stepless blade adjustment
- Pneumatic actuators: Pneumatic actuators for opening and closing multileaf dampers

Accessories

- Installation subframe: Installation subframe for the fast and simple installation of external weather louvres

Construction features

External weather louvre

- Free area of approx. 60 %, with insect screen approx. 45 %
- Wire mesh at the rear, mesh aperture 20 × 20 × 1.8 mm
- Optional insect screen at the rear, mesh aperture 1.25 × 1.25 × 0.4 mm
- Border fixing holes

Multileaf damper

- Rectangular casing, welded (P1: casing with screws), material thickness 1.25 mm
- Blades, material thickness 1 mm
- Flanges on both sides, suitable for duct connection, with corner holes
- External linkage, robust and durable, consisting of the coupling rod and and horizontal arms
- Blade shafts, Ø12 mm, with notch to indicate the blade position

Materials and surfaces

- Border, mullion and blades made of formed galvanised sheet steel or aluminium
- Wire mesh made of galvanised steel or stainless steel
- Casing and blades of the multileaf damper made of galvanised sheet steel
- Blade shafts, drive arm and external linkage made of galvanised steel
- Plain bearings made of plastic
- P1: Powder-coated, RAL CLASSIC colour
- PS: Powder-coated, NCS or DB colour

Maintenance

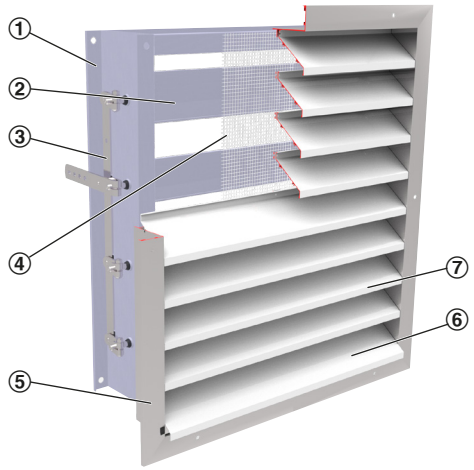
- Maintenance-free as construction and materials are not subject to wear
- Contamination should be removed as it may lead to corrosion and to increased closed blade air leakage

Functional description

External weather louvres are externally mounted air transfer devices for the fresh air and exhaust air of air conditioning systems. They are installed in external walls and façades. Their narrowly arranged blades give good protection against the direct ingress of rain as well as against leaves and birds.
Under certain unfavourable conditions, such as heavy rain, and depending on the airflow velocity it might happen that slight quantities of water enter together with the air.
This is why the airflow velocity in fresh air openings should not exceed 2 – 2.5 m/s.

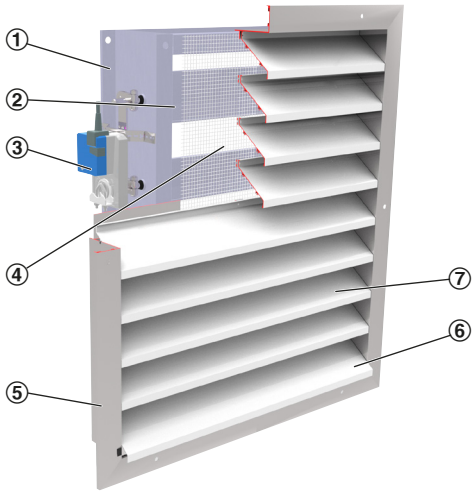
Linkage
Multileaf dampers with external linkage can have parallel action blades or opposed action blades. An external linkage transfers the synchronous rotational movement from the drive arm to the individual blades. Even very large multileaf dampers can be safely opened and closed with this type of linkage.
Opposed action blades close at different speeds since the linkage includes a transverse link. This facilitates the closing process and reduces the closed blade air leakage.

Schematic illustration of WG-JZ



① JZ casing
② JZ blade
③ JZ linkage
④ Wire mesh; additional insect screen as an option
⑤ WG border
⑥ WG bottom blade
⑦ WG regular blades

Schematic illustration of WG-JZ with attachments



① JZ casing
② JZ blade
③ JZ actuator
④ Wire mesh; additional insect screen as an option
⑤ WG border
⑥ WG bottom blade
⑦ WG regular blades

Nominal sizes	200 × 180 to 2000 × 1995 mm
Free area	Approx. 60 %, with insect screen approx. 45 %
Total differential pressure – exhaust air	30 Pa at 2.5 m/s
Total differential pressure – fresh air	35 Pa at 2.5 m/s
Operating temperature	–20 to 100 °C

Combinations of an external weather louvre and a multileaf damper.
Rectangular external weather louvre as a protection of air conditioning systems against the direct ingress of rain, leaves and birds into fresh air and exhaust air openings.
Rectangular multileaf damper for volume flow and pressure control as well as for shutting off ducts and openings in walls and ceiling slabs.
Ready-to-install component which consists of a border, aerofoil rain defence blades, and a wire mesh at the rear.
Shut-off damper which consists of the casing, aerofoil blades and the blade mechanism.
Suitable for duct pressures up to 1000 Pa.
With flange, suitable for duct connection.
The blade position is indicated externally by a notch in the blade shaft extension.
Casing air leakage to EN 1751, class C.

Special characteristics

- Any intermediate sizes within the standard size range are available
- Low installation effort on site since external weather louvre and multileaf damper are factory combined and assembled
- Aerofoil parallel or opposed hollow blades
- Operating temperature –20 – 100 °C
- For very large sizes, several combinations can be arranged side by side or on top of each other
- Low-maintenance, robust construction
- Low differential pressure and low noise due to aerofoil blades

Materials and surfaces

- Border, mullion and blades made of formed galvanised sheet steel or aluminium
- Wire mesh made of galvanised steel or stainless steel
- Casing and blades of the multileaf damper made of galvanised sheet steel
- Blade shafts, drive arm and external linkage made of galvanised steel
- Plain bearings made of plastic
- P1: Powder-coated, RAL CLASSIC colour
- PS: Powder-coated, NCS or DB colour

Construction

Cover grille

- Wire mesh
- 1: With insect screen, galvanised steel (only WG-JZ)
- 2: With wire mesh, stainless steel (only WG-AL-JZ)
- 3: With insect screen and wire mesh, stainless steel (only WG-AL-JZ)

Border

- Border fixing holes
- U: Without fixing holes

Technical data

- Nominal sizes: 200 × 180 to 2000 × 1995 mm
- Free area: approx. 60 %, with insect screen approx. 45 %
- Total differential pressure – exhaust air: 30 Pa at 2.5 m/s
- Total differential pressure – fresh air: 35 Pa at 2.5 m/s
- Operating temperature: –20 – 100 °C

Sizing data

- $\dot{V}$ _____ _____ [m^3/h]
- Δp_t _____ _____ [Pa]

Air-regenerated noise

- L_{WA} _____ _____ [dB(A)]

Application

Notes on the order code

7 The nominal size equals the dimensions of the duct connected to the multileaf damper (without actuator). Depending on the size of the installation opening, an installation subframe may have to be used.
– Installation opening without installation subframe: B + 95 mm, H + 95 mm
– Installation opening with installation subframe: B + 115 mm, H + 115 mm

9 WG-JZ multileaf dampers cannot be retrofitted with an actuator

WG-JZ

WG – AL – 2 – ... – JZ – P – L / 600×510 / ER / Z04 / NC / P1 – RAL ...

1 2 3 4 1 5 6 7 8 9 10 11

1 Type
WG-JZ Combination of external weather louvre and multileaf damper

2 Material – WG
No entry: galvanised steel
AL Aluminium

3 Construction – WG
No entry: wire mesh, galvanised steel
1 Insect screen, galvanised steel
2 Wire mesh, stainless steel (only WG-AL)
3 Insect screen and wire mesh made of stainless steel (only WG-AL)

4 WG border
No entry: With fixing holes
U Without fixing holes

5 Function – JZ
S Opposed (standard)
P Parallel

6 Operating side – JZ
No entry: on the right
L Left side

7 Nominal size [mm]
B × H

8 Installation subframe – WG
No entry: None
ER With (not for construction without fixing holes)

9 Attachments – JZ
No entry: None
Z04 – Z07 Quadrant stay
Z12 – Z51 Actuators
ZF01 – ZF15 Spring return actuators
Z60 – Z77 Pneumatic actuators

10 Damper blade safety function – JZ
Only for spring return actuators or pneumatic actuators
NO Pressure off/power off to OPEN
NC Pressure off/power off to CLOSE

11 Surface – WG
No entry: standard construction
P1 Powder-coated, RAL Classic colour
PS Powder-coated, DB colour

Only for WG-AL
S2 Anodised to EURAS standard, E6-C-… (31 to 35)
S3 Anodised to EURAS standard, E6-C-0

Gloss level
RAL 9010 50 %
RAL 9006 30 %
All other RAL colours 70 %

Order example: WG–AL–1–JZ–S–L/1600×1995/ER/Z12/P1–RAL 7001

Material – WG	Aluminium
Construction – WG	Insect screen, galvanised steel
Function – JZ	Opposed
Operating side – JZ	Left side
Nominal size	1600×1995 mm
Installation subframe – WG	With
Attachments – JZ	Actuator SM230A
Surface – WG	Powder-coated, RAL 7001, silver grey

WG-JZ-S

Variant
– External weather louvre and multileaf damper with opposed blade action, both made of galvanised sheet steel

Construction
– Wire mesh
– 1: With insect screen
– U: Border without fixing holes

1 can be combined with U

Nominal sizes
– B: 200 – 2000 mm, in increments of 1 mm
– H: 180, 345, 510, 675, 840, 1005, 1170, 1335, 1500, 1665, 1830, 1995 mm (intermediate sizes 183 – 1998 in increments of 1 mm, except for standard size H – 1 mm, H + 1 mm, H + 2 mm)
– Any combination of B × H

Parts and characteristics
– Border
– Regular blades and bottom blade
– Wire mesh
– Optional insect screen
– Visible mullion or stabilising mullion at the rear, from B = 1385 mm
– Shut-off damper
– Blades with external linkage
– Drive arm

Construction features
External weather louvre
– Free area of approx. 60 %, with insect screen approx. 45 %
– Wire mesh at the rear, mesh aperture 20 × 20 × 1.8 mm
– Optional insect screen at the rear, mesh aperture 1.25 × 1.25 × 0.4 mm
– Border fixing holes

Multileaf damper
– Rectangular casing, welded (P1: casing with screws), material thickness 1.25 mm
– Blades, material thickness 1 mm
– Flanges on both sides, suitable for duct connection, with corner holes
– External linkage, robust and durable, consisting of the coupling rod and and horizontal arms
– Blade shafts, Ø12 mm, with notch to indicate the blade position

Materials and surfaces
External weather louvre
– P1: Powder-coated, RAL CLASSIC colour
– PS: Powder-coated, NCS or DB colour

WG-JZ-P

Variant
– External weather louvre and multileaf damper with parallel blade action, both made of galvanised sheet steel

Construction
– Wire mesh
– 1: With insect screen
– U: Border without fixing holes

1 can be combined with U

Nominal sizes
– B: 200 – 2000 mm, in increments of 1 mm
– H: 180, 345, 510, 675, 840, 1005, 1170, 1335, 1500, 1665, 1830, 1995 mm (intermediate sizes 183 – 1998 in increments of 1 mm, except for standard size H – 1 mm, H + 1 mm, H + 2 mm)
– Any combination of B × H

Parts and characteristics
– Border
– Regular blades and bottom blade
– Wire mesh
– Optional insect screen
– Visible mullion or stabilising mullion at the rear, from B = 1385 mm
– Shut-off damper
– Blades with external linkage
– Drive arm

Construction features
External weather louvre
– Free area of approx. 60 %, with insect screen approx. 45 %
– Wire mesh at the rear, mesh aperture 20 × 20 × 1.8 mm
– Optional insect screen at the rear, mesh aperture 1.25 × 1.25 × 0.4 mm
– Border fixing holes

Multileaf damper
– Rectangular casing, welded (P1: casing with screws), material thickness 1.25 mm
– Blades, material thickness 1 mm
– Flanges on both sides, suitable for duct connection, with corner holes
– External linkage, robust and durable, consisting of the coupling rod and and horizontal arms
– Blade shafts, Ø12 mm, with notch to indicate the blade position

Materials and surfaces
External weather louvre
– P1: Powder-coated, RAL CLASSIC colour
– PS: Powder-coated, NCS or DB colour

WG-AL-JZ-S

Variant
– External weather louvre made of aluminium

and multileaf damper with opposed blade action made of galvanised sheet steel

Construction
- Wire mesh
- 1: With insect screen
- 2: With wire mesh, stainless steel
- 3: With insect screen and wire mesh, stainless steel
- U: Border without fixing holes

1, 2, 3 can be combined with U

Nominal sizes
- B: 200 – 2000 mm, in increments of 1 mm
- H: 180, 345, 510, 675, 840, 1005, 1170, 1335, 1500, 1665, 1830, 1995 mm (intermediate sizes 183 – 1998 in increments of 1 mm, except for standard size H – 1 mm, H + 1 mm, H + 2 mm)
- Any combination of B × H

Parts and characteristics
- Border
- Regular blades and bottom blade
- Wire mesh
- Optional insect screen
- Visible mullion or stabilising mullion at the rear, from B = 1385 mm
- Shut-off damper
- Blades with external linkage
- Drive arm

Construction features
External weather louvre
- Free area of approx. 60 %, with insect screen approx. 45 %
- Wire mesh at the rear, mesh aperture 20 × 20 × 1.8 mm
- Optional insect screen at the rear, mesh aperture 1.25 × 1.25 × 0.4 mm
- Border fixing holes

Multileaf damper
- Rectangular casing, welded (P1: casing with screws), material thickness 1.25 mm
- Blades, material thickness 1 mm
- Flanges on both sides, suitable for duct connection, with corner holes
- External linkage, robust and durable, consisting of the coupling rod and and horizontal arms
- Blade shafts, Ø12 mm, with notch to indicate the blade position

Materials and surfaces
External weather louvre
- P1: Powder-coated, RAL CLASSIC colour
- PS: Powder-coated, NCS or DB colour
- S2: Anodised to EURAS standard, E6-C-31...35
- S3: Anodised to EURAS standard, E6-C-0

WG-AL-JZ-P

Variant
- External weather louvre made of aluminium and multileaf damper with parallel blade action made of galvanised sheet steel

Construction
- Wire mesh
- 1: With insect screen
- 2: With wire mesh, stainless steel
- 3: With insect screen and wire mesh, stainless steel
- U: Border without fixing holes

1, 2, 3 can be combined with U

Nominal sizes
- B: 200 – 2000 mm, in increments of 1 mm
- H: 180, 345, 510, 675, 840, 1005, 1170, 1335, 1500, 1665, 1830, 1995 mm (intermediate sizes 183 – 1998 in increments of 1 mm, except for standard size H – 1 mm, H + 1 mm, H + 2 mm)
- Any combination of B × H

Parts and characteristics
- Border
- Regular blades and bottom blade
- Wire mesh
- Optional insect screen
- Visible mullion or stabilising mullion at the rear, from B = 1385 mm
- Shut-off damper
- Blades with external linkage
- Drive arm

Construction features
External weather louvre
- Free area of approx. 60 %, with insect screen approx. 45 %
- Wire mesh at the rear, mesh aperture 20 × 20 × 1.8 mm
- Optional insect screen at the rear, mesh aperture 1.25 × 1.25 × 0.4 mm
- Border fixing holes

Multileaf damper
- Rectangular casing, welded (P1: casing with screws), material thickness 1.25 mm
- Blades, material thickness 1 mm
- Flanges on both sides, suitable for duct connection, with corner holes
- External linkage, robust and durable, consisting of the coupling rod and and horizontal arms
- Blade shafts, Ø12 mm, with notch to indicate the blade position

Materials and surfaces
External weather louvre
- P1: Powder-coated, RAL CLASSIC colour
- PS: Powder-coated, NCS or DB colour
- S2: Anodised to EURAS standard, E6-C-31...35
- S3: Anodised to EURAS standard, E6-C-0

Materials

Order code detail	Part	Material	Notes
–	Front border	Formed sheet steel, galvanised	Material thickness 1.5 mm
	Blades	Formed sheet steel, galvanised	Material thickness 0.63 mm
	Mullion	Formed sheet steel, galvanised	From B = 1385 mm
	Wire mesh	Galvanised steel	
	Casing and blades of the multileaf damper	Galvanised sheet steel	
	Blade shafts, drive arm and external linkage	Galvanised steel	
	Bearings	Plastic	
AL	Front border	Extruded aluminium sections, material no. EN AW-6060 T66	Material thickness 1.7 mm
	Blades	Extruded aluminium sections, material no. EN AW-6060 T66	Material thickness 1.35 mm
	Stabilising mullion	Extruded aluminium sections, material no. EN AW-6060 T66	From B = 1385 mm
1	Insect screen	Galvanised steel	Only WG-AL-JZ
2	Wire mesh	Stainless steel, material no. 1.4301	Only WG-AL-JZ
3	Wire mesh	Stainless steel, material no. 1.4301	Only WG-AL-JZ
	Insect screen	Stainless steel, material no. 1.4301	Only WG-AL-JZ

Surfaces

Order code detail	Part	Surface	Notes
–	Border and blades	Untreated	
P1-RAL ...	Border and blades	Powder-coated, RAL ... CLASSIC	
PS-DB ...	Border and blades	Powder-coated, DB ...	
S2	Border and blades	Anodised to EURAS standard, E6-C-31...35	Only WG-AL-JZ
S3	Border and blades	Anodised to EURAS standard, E6-C-0	Only WG-AL-JZ

WG-JZ

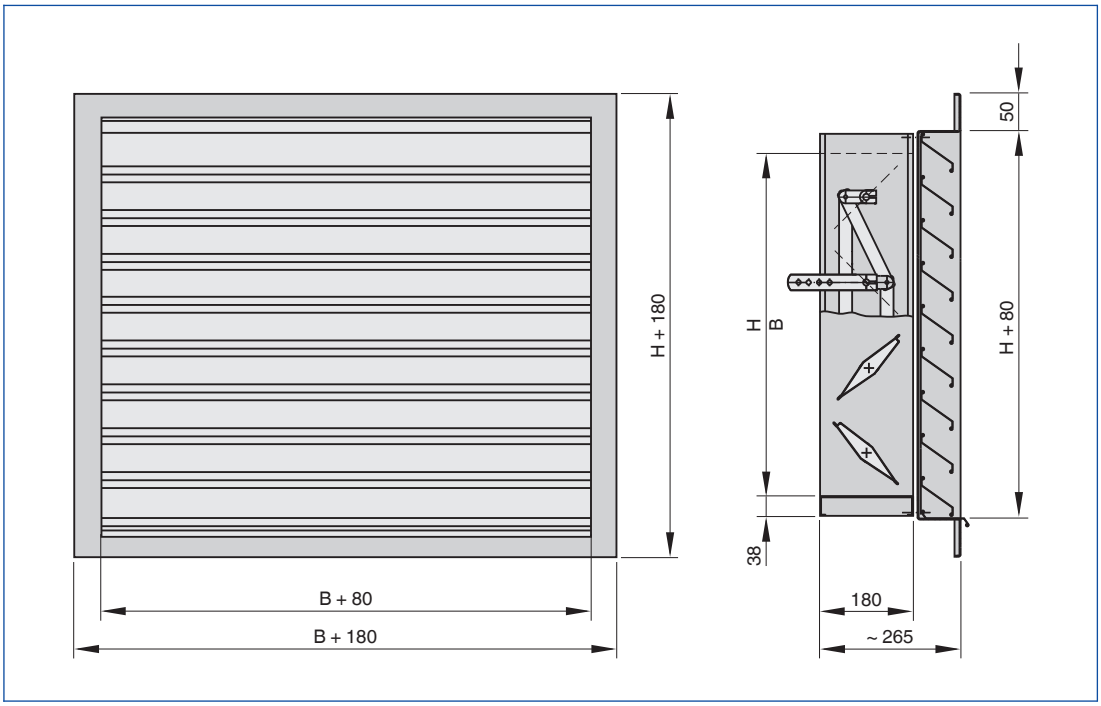


Illustration shows a multileaf damper with drive arm, operating side on the right

WG-JZ, weight

H	B [mm]									
	200	400	600	800	1000	1200	1400	1600	1800	2000
mm	kg									
180	10	15	20	24	29	33	38	42	47	51
345	11	16	21	26	31	36	41	46	51	56
510	13	19	25	31	37	43	49	55	61	67
675	16	23	30	37	44	51	58	65	72	79
840	18	26	34	42	50	58	66	74	82	90
1005	20	28	37	45	54	62	71	79	88	96
1170	23	32	42	51	61	70	80	89	99	108
1335	26	36	47	57	68	78	89	99	110	120
1500	30	41	52	63	74	85	96	107	118	129
1665	34	46	58	70	82	94	106	118	130	142
1830	38	51	64	77	90	103	116	129	142	155
1995	40	56	72	88	104	120	136	152	168	184

WG-AL-JZ, weight

H	B [mm]									
	200	400	600	800	1000	1200	1400	1600	1800	2000
mm	kg									
180	9	14	18	23	27	31	34	38	43	47
345	10	14	19	24	28	33	36	41	46	50
510	12	17	22	28	33	38	42	47	54	60
675	14	21	27	33	39	45	51	58	65	70
840	16	23	30	37	44	52	58	66	75	81
1005	17	25	32	40	48	56	63	70	79	86
1170	19	28	37	47	55	63	70	79	89	97
1335	22	32	42	53	61	70	79	88	100	107
1500	27	38	48	59	68	77	86	96	107	115
1665	31	44	54	66	76	87	96	107	119	127
1830	36	49	61	74	85	96	106	117	130	138
1995	38	55	70	86	100	114	126	140	155	166

WG-JZ with actuator

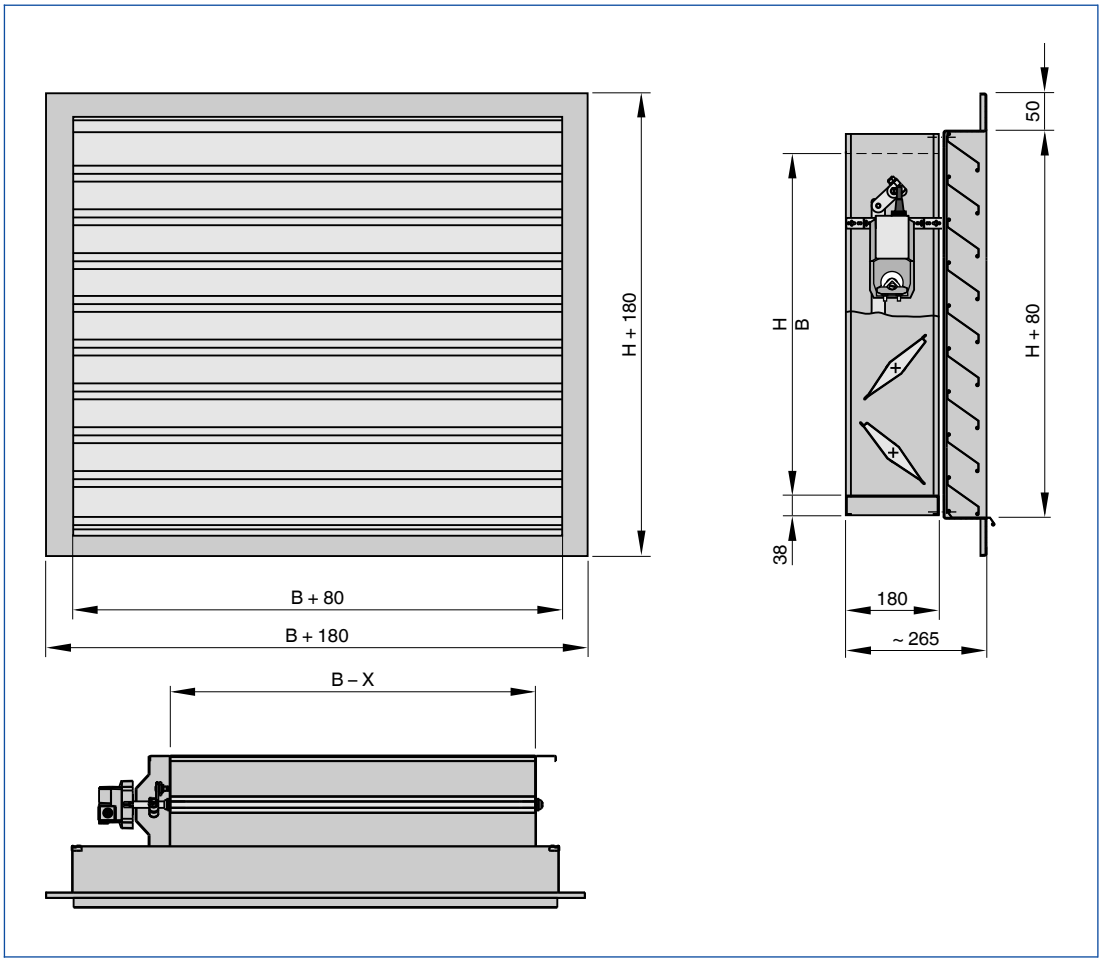


Illustration shows a multileaf damper with actuator, operating side on the right

Space required for attachments

Attachments	X	B_{min}
	mm	
Z12 – Z51	180	385
ZS21 – ZS22	180	385
ZF01 – ZF15	180	385
ZS99	180	385
Z60 – Z77	200	405

In WG-JZ combinations with an attachment the width of the multileaf damper is by X mm shorter than the external weather louvre.
B_{min} is the minimum width of a WG-JZ combination with an attachment (X + 205 mm)

Installation and commissioning

- With or without installation subframe
- Torsion-free installation

Note

- Multileaf dampers without actuators have shorter shafts; it is not possible to retrofit actuators
- Combinations with multileaf dampers that allow for retrofitting an actuator are available upon request

Wall installation without installation subframe

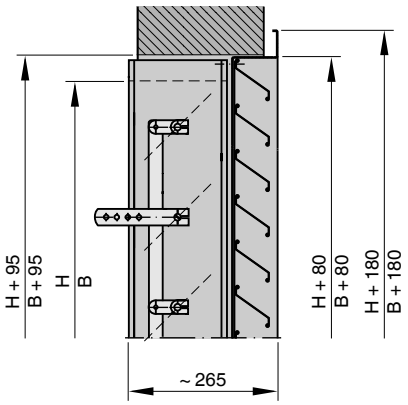
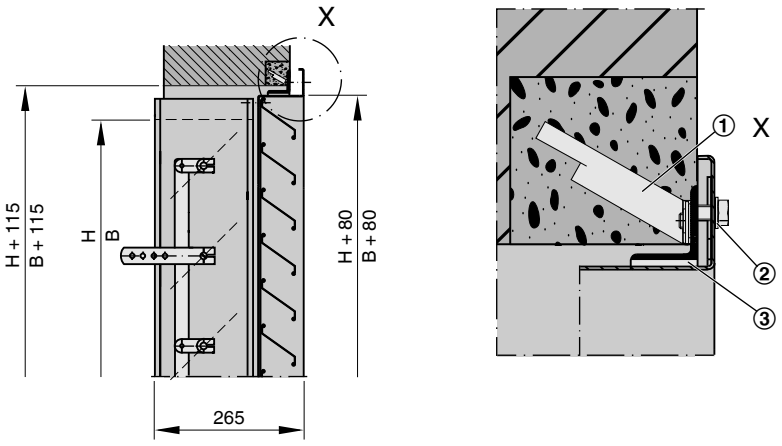


Illustration shows WG-JZ-P, operating side on the right

Installation dimensions – WG-JZ-P, WG-JZ-S, WG-AL-JZ-P, WG-AL-JZ-S



① Fixing tab
② Hexagon head screw with washer
③ Installation subframe

Illustration shows WG-J-P/.../ER

Nomenclature

L_{WA} [dB(A)]
A-weighted sound power level of air-regenerated noise for the louvre

A [m^2]
Upstream cross section

v [m/s]
Airflow velocity based on the upstream cross section

v_t [m/s]
Airflow velocity based on the upstream cross section (type NL)

$\dot{V}$ [m^3/h] and [l/s]
Volume flow rate

Δp_t [Pa]
Total differential pressure

All sound power levels are based on 1 pW.

Principal dimensions

B [mm]
Duct width

B_1 [mm]
Duct width for subdivided louvres

H [mm]
Duct height

H_1 [mm]
Duct height for subdivided louvres

n [ ]
Number of flange screw holes

m [kg]
Weight