

07



Protection louvres



Supply air/exhaust
air towers

External elements

Protection louvres are installed in building fronts (in supply and exhaust air openings) as a protection against the direct ingress of rain, birds, bigger insects etc. They are suitable for all low pressure air-conditioning, heating and ventilation.

Air towers are used for the supply and exhaust of air.

VENTILATING GRILLES,
VENTILATING VALVES

CIRCULAR DIFFUSERS,
SQUARE DIFFUSERS

SWIRL DIFFUSERS,
VARIABLE SWIRL
DIFFUSERS

SLOT DIFFUSERS,
ROUND DUCT DIFFUSERS

AIR DISPLACEMENT
UNITS

SUPPLY AIR NOZZLES

EXTERNAL ELEMENTS

AIR FLOW
CONTROL UNITS

SOUND ATTENUATORS,
SOUND ATTENUATING
LOUVRES

Overview

■ Protection louvres

Protection louvres are installed in building fronts (in supply and exhaust air openings) as a protection against the direct ingress of rain, birds, bigger insects etc. They are suitable for all low pressure air-conditioning, heating and ventilation. They are made of galvanised steel or aluminium in numerous standard or special dimensions.

Protection louvres



AZR-3



AZR-4



JZR-6



OZR-1

■ Supply air/exhaust air towers

Air towers are used for the supply and exhaust of air. Various construction types can be made of different materials and in different dimensions according to the customer's request.

Supply air/exhaust air towers



SP - round



SP - rectangular

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Protection louvres

Aluminium protection louvres AZR-3

Application

Aluminium protection louvres AZR-3 are suitable for all low pressure air-conditioning, heating and ventilation where supply and exhaust openings require protection against the direct ingress of rain, birds, bigger insects etc.

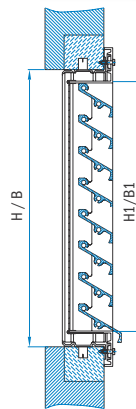
Description

Aluminium protection louvres AZR-3 are made of extruded aluminium sections galvanised in natural aluminium colour. They consist of supporting frame and specially shaped horizontal vanes and protection screen of galvanised wire. They feature esthetical external appearance.

Standard sizes

All combinations of B1 and H1 according to the table of dimensions are possible.

Non-standard dimensions are available on request.

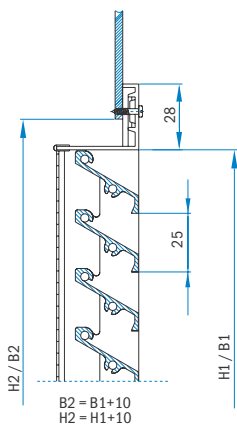


Sizes AZR-3

H1 (mm)	100	150	200	250	300	400	500	600	700	800	900	1000	1100	1200
B1 (mm)			200	250	300	400	500	600	700	800	900	1000	1100	1200
n	4	6	8	10	12	16	20	24	28	32	36	40	44	48

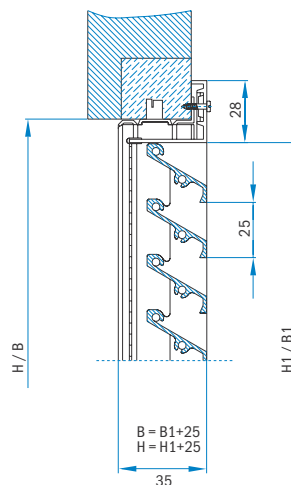
n - number of vanes

Installation types



Protection louvre is fixed with screws directly on duct.

Designation: AZR-3



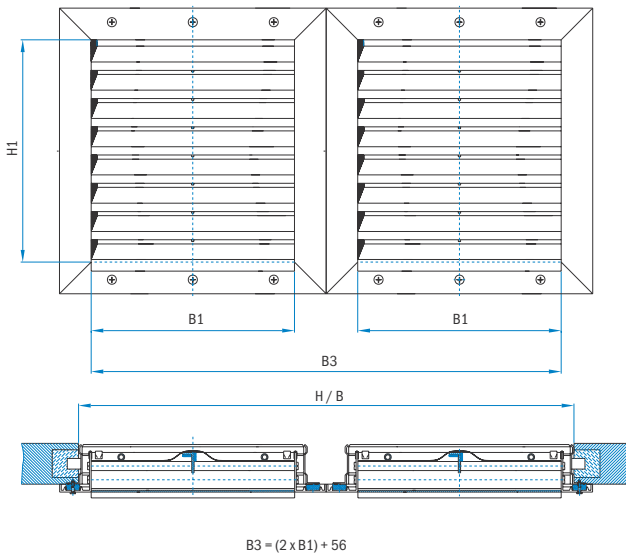
Protection louvre is fixed with screws to the built-in frame made of steel angle.

Designation: AZR-3/2

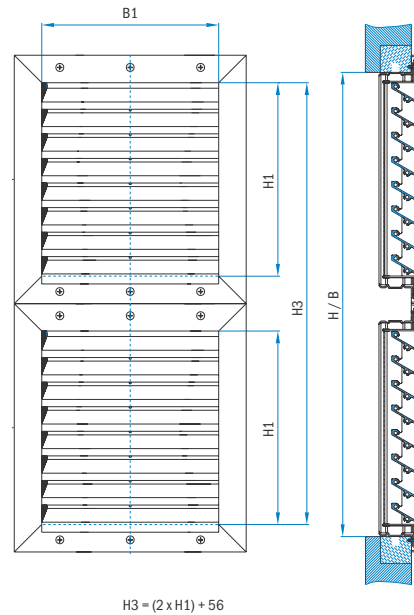
Installation of larger aluminium protection louvres

The combination by width:

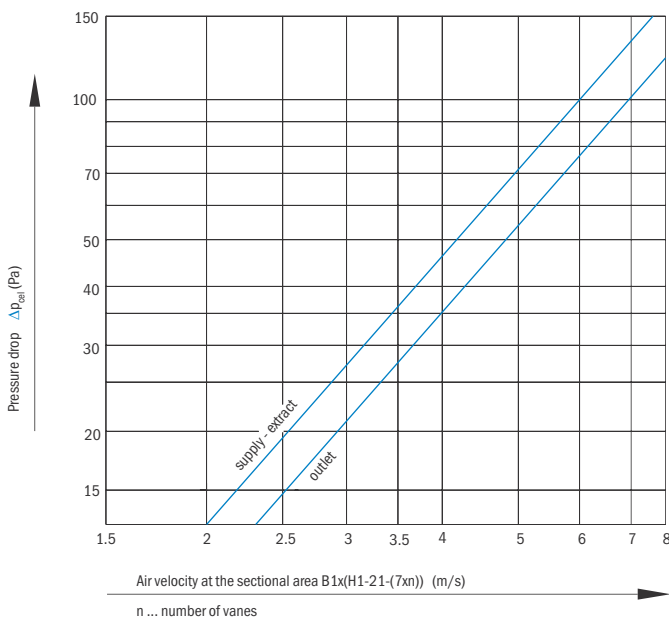
Several protection louvres can be fitted together.



The combination by height:



Pressure drop diagram



Example of calculation:

$A_{ef} = B1 \times (H1 - 21 - (7 \times n))$ in m^2 where n is a number of vanes.

$B1 = 600 \text{ mm}$, $H1 = 300 \text{ mm}$, $n = 12$

$Q = 1450 \text{ m}^3/\text{h}$

$A_{ef} = 600 \times (300 - 21 - (7 \times 12)) = 117000 \text{ mm}^2 \geq 0.117 \text{ m}^2$

$v = (Q / 3600) / A_{ef} = (1450 / 3600) / 0.117 = 3.44 \text{ m/s}$

Δp_{cel} from diagram	Supply	36 Pa
	Outlet	28 Pa

Ordering example:

Aluminium protection louvre

with installation frame: **AZR-3/2**

Size: **B1 = 600 H1 = 300**

Pcs: **5**

Use the diagram to determine the total pressure drop in respect of air velocity at the free sectional area.

Aluminium Protection louvres AZR-4

Application

Aluminium protection louvres AZR-4 are suitable for all low pressure air-conditioning, heating and ventilation where supply and exhaust opening require protection against the direct ingress of rain, birds, bigger insects etc.

Description

Aluminium protection louvres AZR-4 are made of extruded aluminium sections galvanised in natural aluminium colour. They consist of supporting frame and specially shaped horizontal vanes and protection screen of galvanised wire. They feature esthetical external appearance.

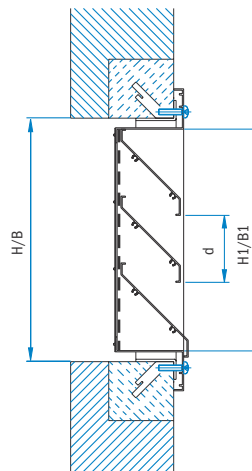
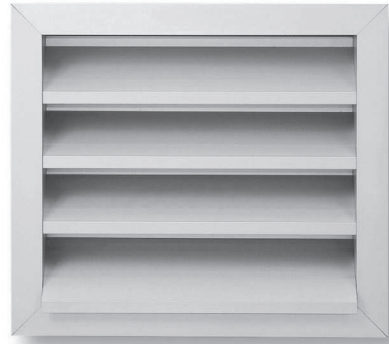
Standard sizes

All combinations of B1 and H1 according to the table of dimensions are possible.

Non-standard dimensions are available on request.

In the case of order where we proceed from the dimension of the hole in the wall or the dimension of the duct, the following combinations of B2 x H2 are possible:

- B2: 200, 300, 400, ..., 2000
- H2: 200, 300, 400, ..., 2000

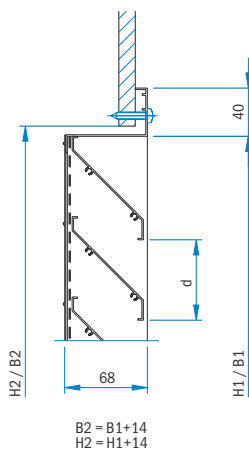


Sizes AZR-4

H1 (mm)	200	250	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000
B1 (mm)	200	250	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000
n	3	4	4	6	7	8	9	11	12	14	15	16	18	19	21	22	23	25	26	27

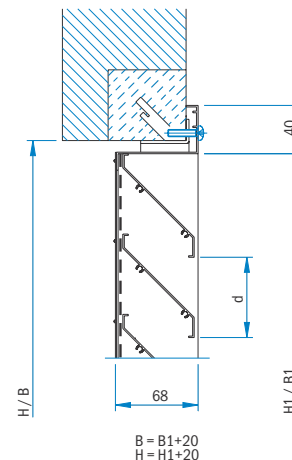
n - number of vanes

Installation types



Protection louvre is fixed with screws directly on duct.

Designation: AZR-4

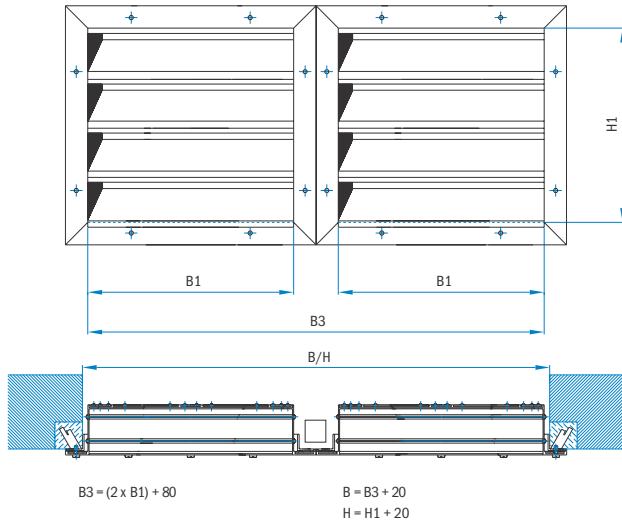


Protection louvre is fixed with screws to the built-in frame made of steel angle.

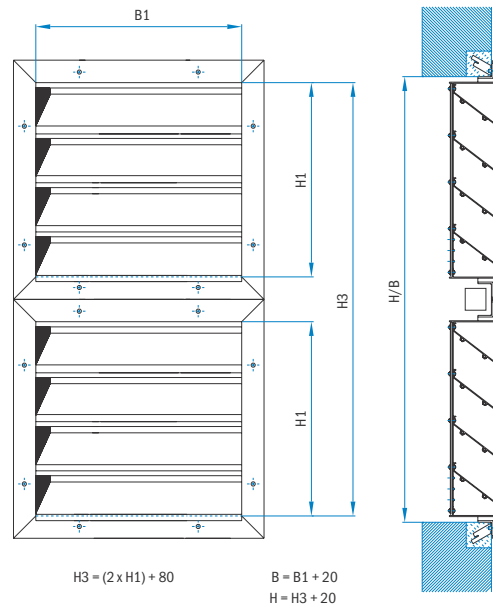
Designation: AZR-4/3

Installation of larger aluminium protection louvres

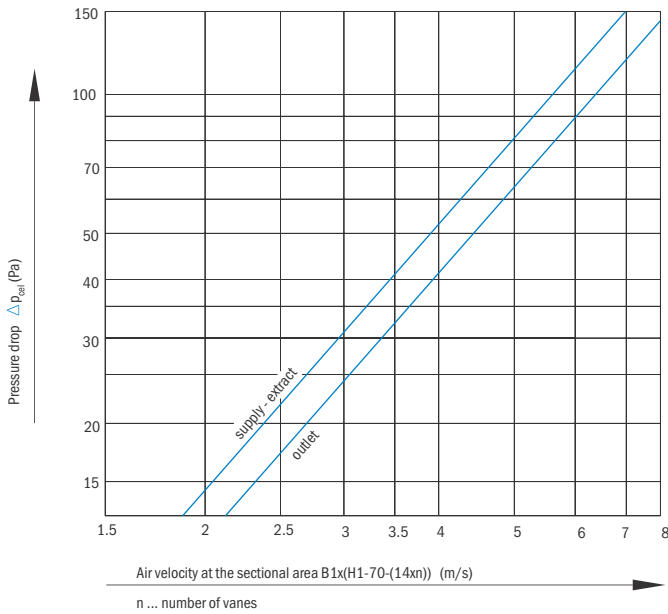
The combination by width:
max. width B1=2000 mm



The combination by height:
Max. height H1=2000 mm



Pressure drop diagram:



Use the diagram to determine the total pressure drop in respect of air velocity at the free sectional area.

Example of calculation

$A_{ef} = B1 \times B1 \times (H1 - 70 - (16 \times n))$ in m^2 where n is a number of vanes.

$B1 = 1200 \text{ mm}, H1 = 600 \text{ mm}, n = 8$

$Q = 5300 \text{ m}^3/\text{h}$

$A_{ef} = 1200 \times (600 - 70 - (16 \times 9)) = 463200 \text{ mm}^2 \geq 0.46 \text{ m}^2$

$v = (Q / 3600) / A_{ef} = (5300 / 3600) / 0.46 = 3.2 \text{ m/s}$

Δp_{cel} from diagram	Supply	32 Pa
	Outlet	25 Pa

Ordering example

Aluminium protection louvre

with installation frame: **AZR-4/3 B1xH1**

Size: **B1 = 1200 H1 = 600**

Pcs: **4**

Steel protection louvres JZR-5, JZR-6, JZR-8

Application

Steel protection louvres JZR-5, JZR-6 and JZR-8 are suitable for all low pressure air-conditioning, heating and ventilation where supply and exhaust opening require protection against the direct ingress of rain, birds, bigger insects etc.

Description

Steel protection louvres JZR-5, JZR-6 and JZR-8 consist of supporting frame and specially shaped horizontal vanes made of galvanised sheet steel with attached protection screen of galvanised wire. At customer's request, steel protection louvers can be powder painted.

Steel protection louvers JZR-5 are classical protection louvers, the only difference being a clearance between the blades, which equals 50 mm, with the depth of the louvers being 50 mm and the width of the edge being 28 mm. Due to their appearance (smaller clearance), they are suitable for smaller openings.



Dimensions JZR-5

Within the range B1 x H1 from 200 x 100 to 1500 x 1000, we produce louvers of optional dimensions.

Dimensions JZR-6 in JZR-8

All combinations of B1 and H1 according to the table of dimensions are possible.

Non-standard dimensions are available on request.

Sizes JZR-5

H1 (mm)	100	150	200	250	300	400	500	600	700	800	900	1000						
B1 (mm)			200	250	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	
n	2	3	4	5	6	8	10	12	14	16	18	20						

n - number of vanes

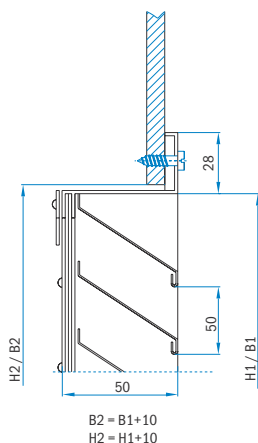
Sizes JZR-6, JZR-8

H1 (mm)	200	250	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000
B1 (mm)	200	250	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000
n	3	3	4	5	7	8	9	11	12	13	15	16	17	19	20	21	23	24	25	27

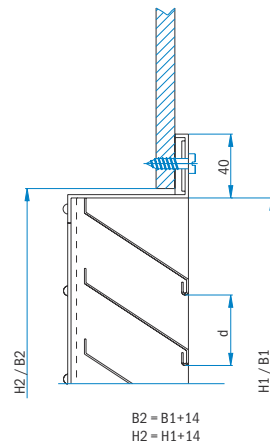
n - number of vanes

Installation types

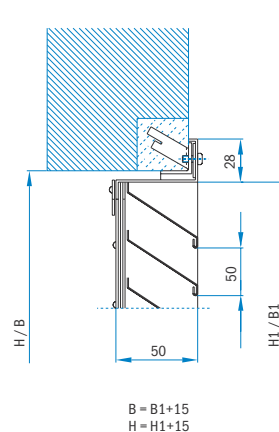
JZR-5



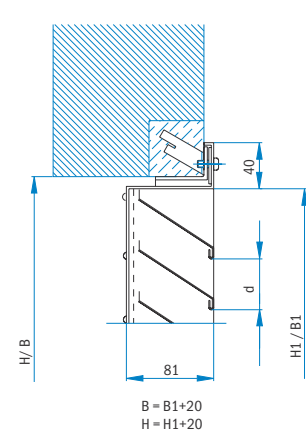
JZR-6, JZR-8



JZR-5/2



JZR-6/3, JZR-8/3



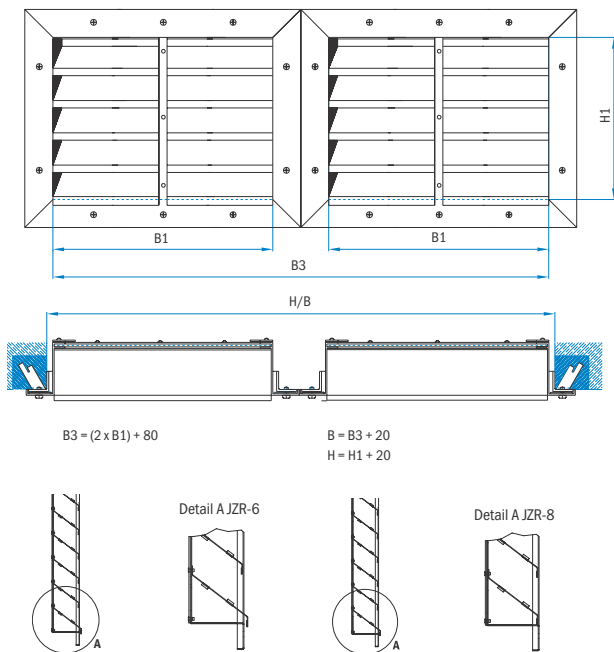
Protection louver is fixed with screws directly on duct.
Designation: JZR-5, JZR-6, JZR-8

Protection louver is fixed with screws to the built-in frame made of steel angle.

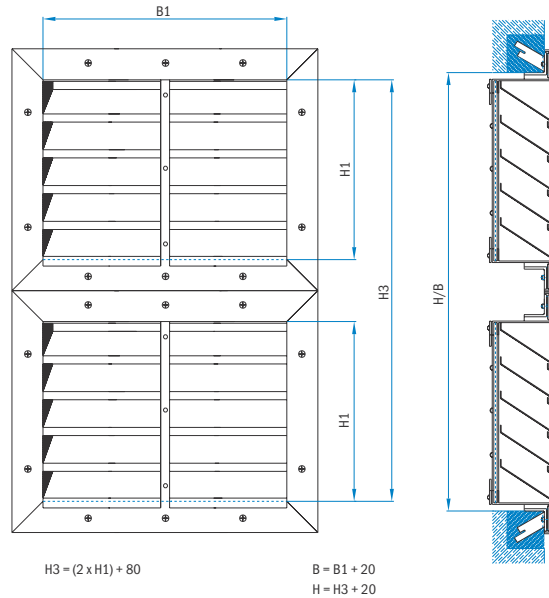
Designation: JZR-5/2, JZR-6/3, JZR-8/3

Installation of larger aluminium protection louvres JZR-6 and JZR-8

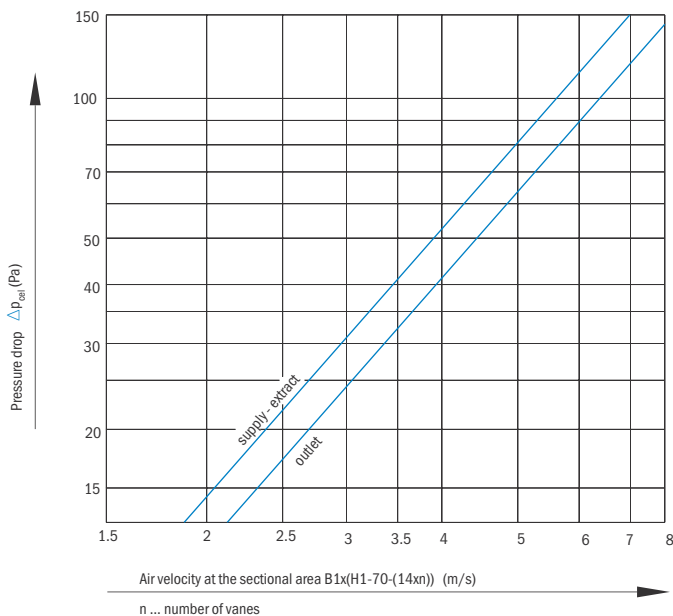
The combination by width:
Max. width B1 = 2000mm



The combination by height:
Max. height H1 = 2000 mm



Pressure drop diagram



Use the diagram to determine the total pressure drop in respect of air velocity at the free sectional area.

Example of calculation

JZR-5

$A_{ef} = B_1 \times (H_1 - 40 - (14 \times n))$ expressed in m^2 where n is a number of vanes.

$B_1 = 500 \text{ mm}$, $H_1 = 400 \text{ mm}$, $n = 8$

$Q = 1000 \text{ m}^3/\text{h}$

$A_{ef} = 500 \times (400 - 40 - (14 \times 8)) = 124000 \text{ mm}^2 \geq 0.124 \text{ m}^2$

$v = (Q / 3600) / A_{ef} = (1000 / 3600) / 0.124 = 2.24 \text{ m/s}$

Δp_{cel} from diagram	Supply	18 Pa
	Outlet	<12 Pa

JZR-6 and JZR-8

$A_{ef} = B_1 \times (H_1 - 60 - (14 \times n))$ in m^2 where n is a number of vanes.

$B_1 = 1600 \text{ mm}$, $H_1 = 1800 \text{ mm}$, $n = 34$

$Q = 20000 \text{ m}^3/\text{h}$

$A_{ef} = 1600 \times (1800 - 60 - (14 \times 34)) = 2022400 \text{ mm}^2 \geq 2 \text{ m}^2$

$v = (Q / 3600) / A_{ef} = (20000 / 3600) / 2 = 2.7 \text{ m/s}$

Δp_{cel} from diagram	Supply	25 Pa
	Outlet	20 Pa

Ordering example

Steel protective louvre with

installation frame: **JZR-6/3 B1xH1**

Size: **B1 = 1600 H1 = 1800**

Pcs: **4**