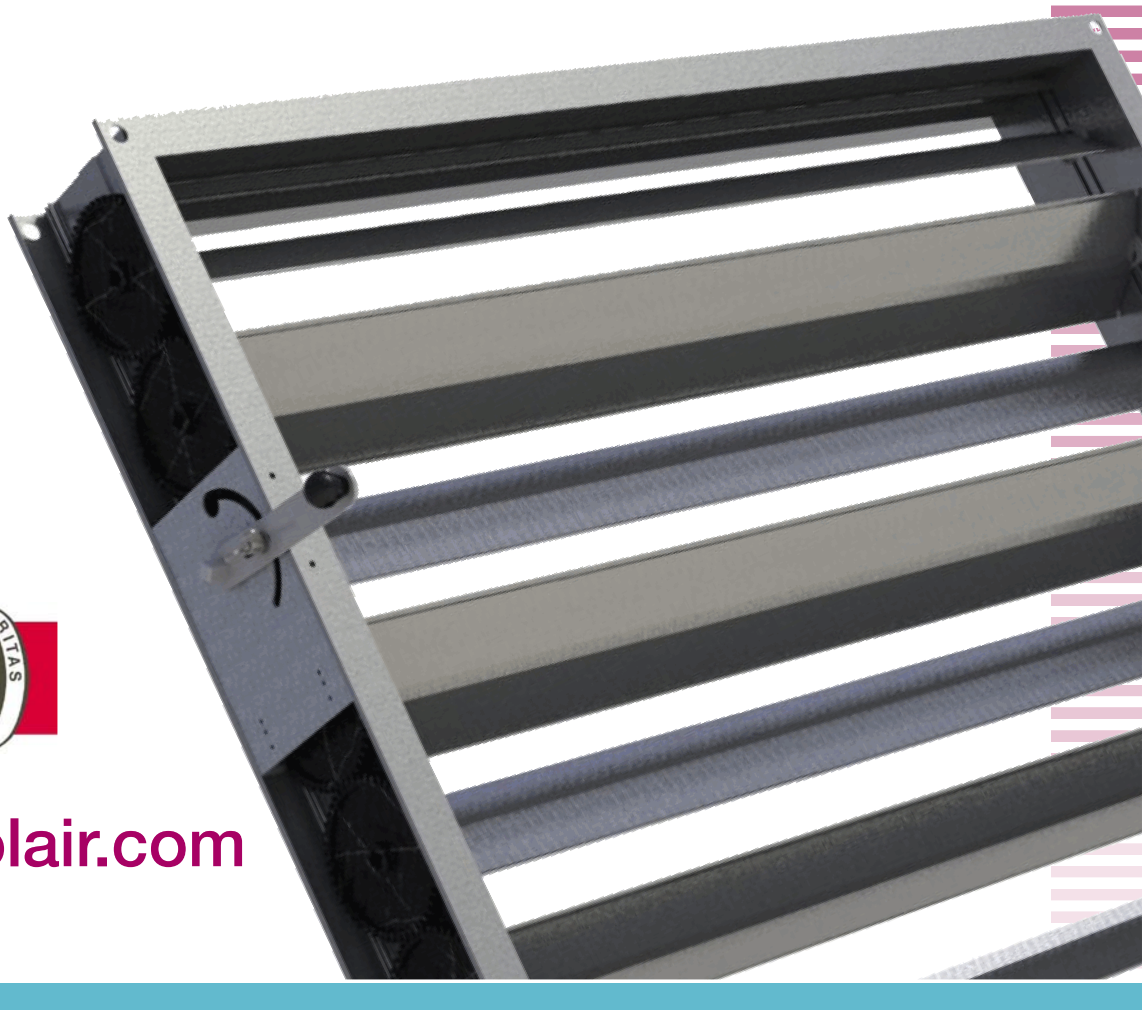
KOOLAIR

series

100-200

Dampers



ISO 9001 BUREAU VERITAS Certification — Sistema de Gestión

www.koolair.com

Get In Touch

Call: 0845 6880112

Email: info@adremit.co.uk

Our Address

Puravent, Adremit Limited, Unit 5a, Commercial Yard, Settle, North Yorkshire, BD24 9RH

Table of Contents

ISO 9001
BUREAU VERITAS
Certification
Sistema de Gestión

100 Series Regulating Dampers

Manually Operated Model AOBD-102-E

Manually Operated Model AOBD-102-E double-length (L>1200)

Double Damper at 90° Model AOBD-102-E-ND90

AOBD-102-E	*Aluminium opposed-vane regulating damper.*
SPBD-105	*Sheet metal parallel-vane regulating damper.*
SOBD-106	*Sheet metal opposed-vane regulating damper.*
L x H (mm)	*Length x height dimensions (mm).*
-	*Ready to be motorized.*
+MM	*Manually operated.*
+MT	*Servomotor driven (indicate what type in the order).*

Description

Regulating damper with opposed and aerodynamic vanes, manufactured in aluminium (AOBD-102-E). The body of the damper has built-in air tight gaskets all around its inner perimeter to ensure a tight seal. The movement of the vanes is ensured by means of gears, achieving a proper friction, with manual or motor-driven operation.

Vanes are available with 75 and 100 mm vane axis distances, to complete the entire range of standard duct dimensions.

Flat parallel-vane (SOBD-105) or opposite-vane (SOBD-106) regulating dampers, manufactured in galvanized steel sheet, manually operated or ready for motor-drive operation. Actuation is carried out through nylon bearings. They incorporate air tight gaskets on the upper and lower longitudinal sides of the vanes to ensure a tight seal. Dampers with leak proof gaskets incorporated on the damper's vertical profiles can be supplied upon request.

Finishes

In natural aluminium (AOBD) or in galvanized steel sheet (SOBD / SPBD).

Overall dimensions

See page 5. Rest of dimensions according to the drawings on the left.

Mounting

It is mounted directly onto a duct, supported on the damper border flanges or framing.
All the damper's operating mechanisms are installed within the U frame. This way, the air can flow freely and it facilitates its installation in closed ducts. The mechanisms as well as the mounting hardware used are made of corrosion resistant materials.

Other constructions

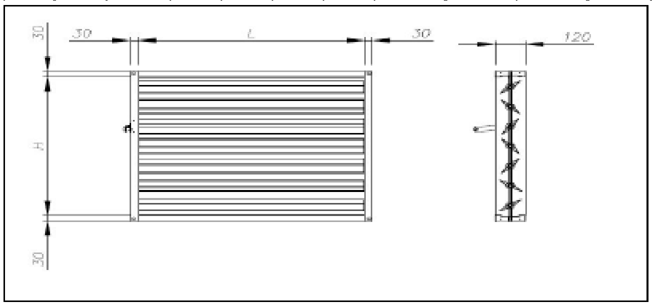
Possibility of manufacturing two solidly joined dampers at 90°, to obtain the same degree of aperture/closing for both dampers (models AOBD-102-E-ND90 or SOBD105-ND90). For the same application, it is also available for parallel mounting.

Models. Dimensions

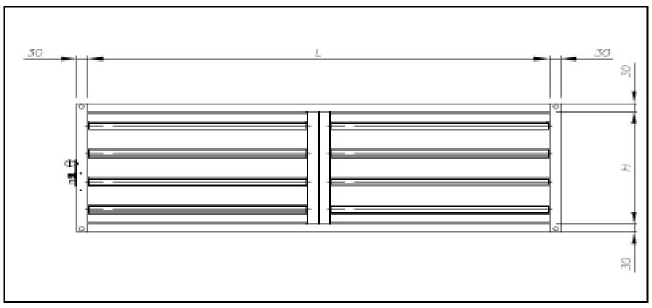
The dimensions indicated below are standard for regulating dampers. Regarding the length and height, they can be manufactured using intermediate dimensions, with 50mm vane axis distances.

Regulating damper model AOBD-102-E

L	200	300	400	500	600	700	800	900	1000	1200	1500	2000	3000
H													
100													
150													
200													
250													
300													
500													
800													
1000													
1200													
1500													
2000													
AOBD-102-E													



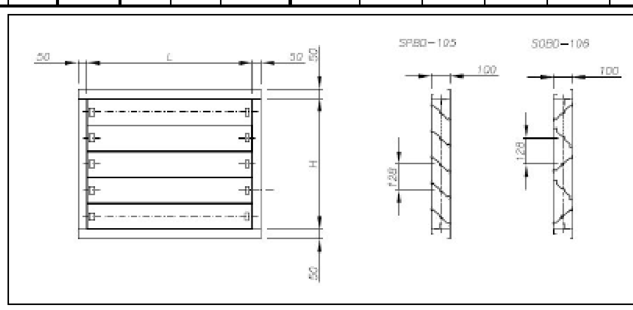
Model AOBD-102-E



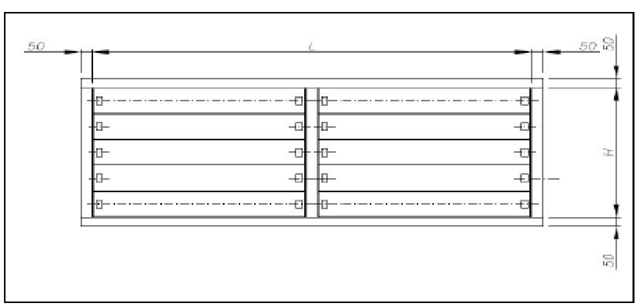
Model AOBD-102-E double length (L>1200)

Regulating damper model SPBD-105 and SOBD-106

L	200	300	400	500	600	700	800	900	1000	1200	1500	2000	3000
H													
160													
288													
416													
544													
672													
800													
928													
1056													
1184													
1312													
SPBD-105 SOBD-106													

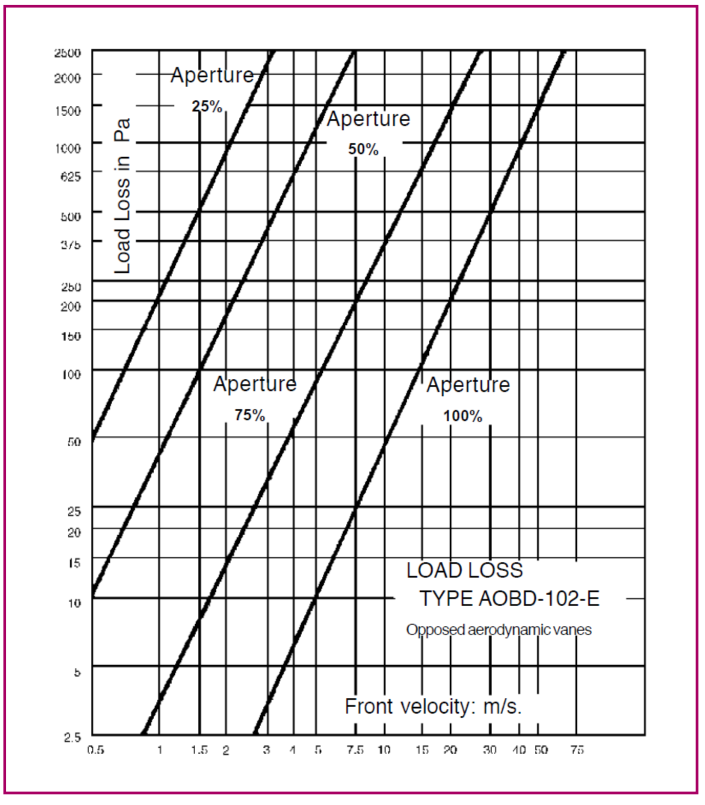


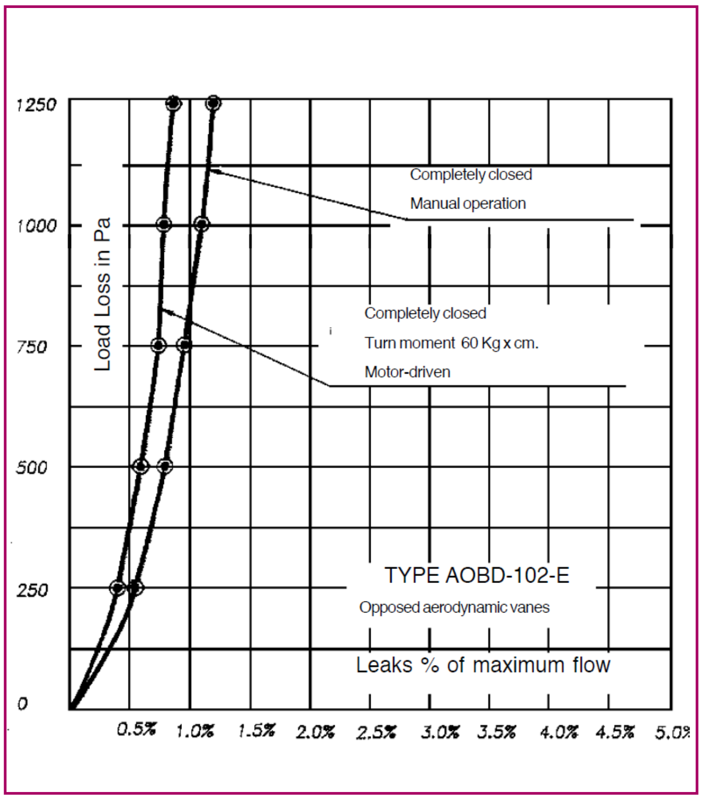
Model SPBD-105 / SOBD-106



Model SPBD-105 / SOBD-106 double length (L>1200)

Load loss and air tightness graphs for aluminium regulating dampers





Note: The air leak at damper AOBD-102-E is not greater than 2% in the closed position, with a static pressure of 1250 Pa.

Example of Selection

Knowing the air flow to be regulated by the damper, and using, for example, a front velocity of 6 m/s, the front surface of the damper can be obtained.

This can be calculated using the following formula:

$A_f(m^2) = q_v\ (m^3/h)\ /\ V_f\ (m/s) \cdot 3600$

With an air flow rate (q_v) of 10.800 m^3/h, we obtain:

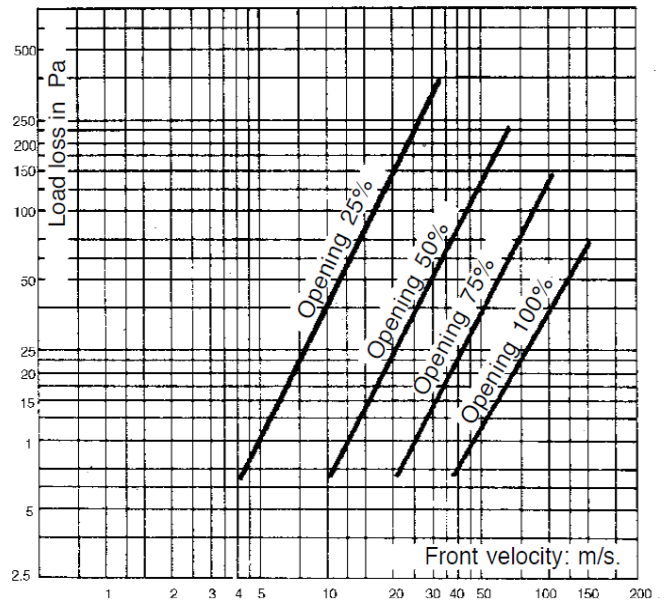
$A_f\ (m^2) = 10.800\ /\ 6 \cdot 3600 = 0{,}50\ m^2$

This would lead to an AOBD-102-E damper with a 1000 x 500 equivalent section with a load loss of 13 Pa for a 100% aperture.

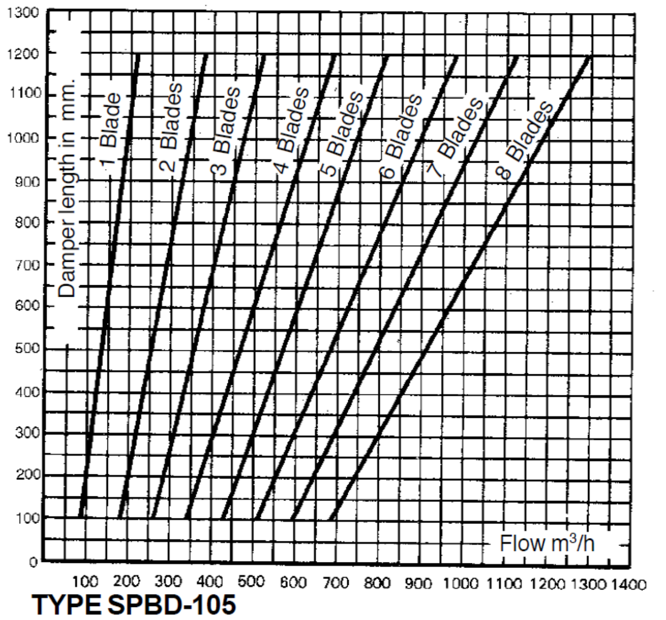
Load loss graphs for steel sheet regulating dampers

Air tightness graphs for steel sheet regulating dampers

TYPE SPBD-105

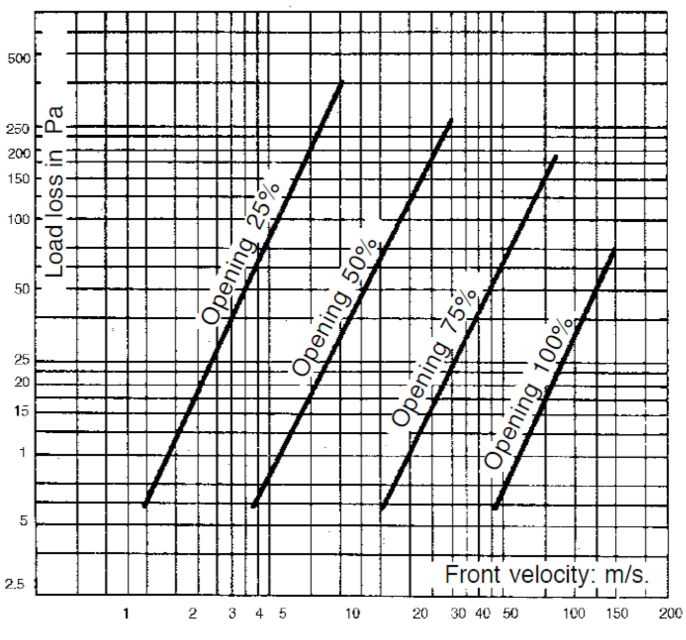


LEAK GRAPH IN m3/h WITHOUT LEAK PROOF GASKETS FOR PARALLEL AND OPPOSED VANE DAMPERS

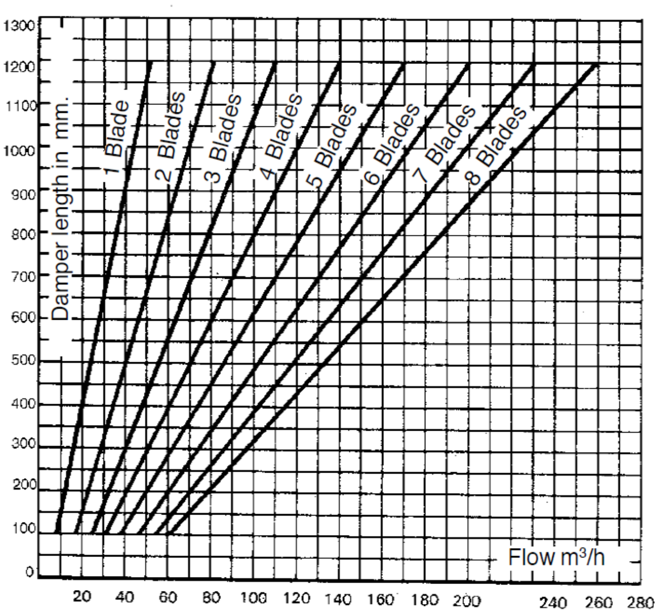


TYPE SPBD-105
TYPE SOBD-106

TYPE SOBD-106



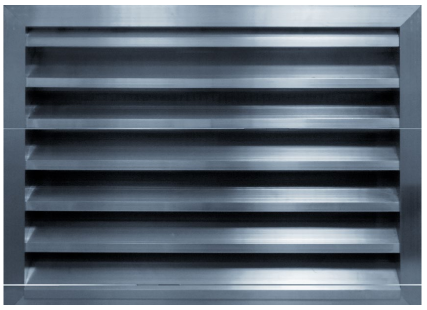
LEAK GRAPH IN m3/h WITH LEAK PROOF SEALS FOR PARALLEL AND OPPOSED VANE DAMPERS



TYPE SPBD-105
TYPE SOBD-106

Note: The air-tightness graphs for the steel sheet regulating dampers are based on a differential pressure of 250 Pa through the damper.

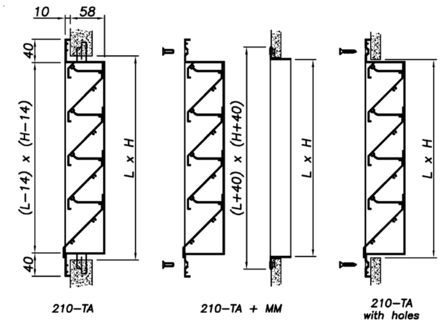
Fresh air intake grilles 200 series



Description

Fresh air intake or extract grille, model 210-TA. Constructed in extruded aluminium. The design and shape of the blades make it completely sight-proof. As it is designed mainly for outdoor installation, it also prevents rainwater, snow, etc. from entering. Includes anti-bird meshes (12.5 mm standard mesh). On request with anti-insect mesh (1.6 mm mesh) or without protection and with or without filter.

Suitable for commercial and industrial buildings, air-conditioning units, transformer housings, plant rooms, garages, outdoor coverings, etc.



Dimensions

The nominal dimensions (LxH mm) correspond to the dimensions of the opening in which the grille will be installed. The overall outline dimensions are (L+66) x (H+66) mm.

Single module units are available with maximum dimensions of 3000 x 2000 mm. (Length x Height). Models over 1000 mm in length have built-in internal central reinforcements.
Variable lengths (L) are available upon request. Height dimensions are manufactured in 50 mm increments. Grilles can be used to form a continuous line.

Accessories

Supplied with anti-bird mesh (standard) or anti-insect mesh (optional). Option available without any type of protection.

The air intake can be supplied with an AOBD control damper (210TA + AOBD) which can be manual or motor-driven with on/off or proportional control motor.
Option to incorporate G4 filter (standard). Possibility of incorporating filters with different efficiencies (210-TA-FF).

Finishes

Standard finish is neutral aluminium.

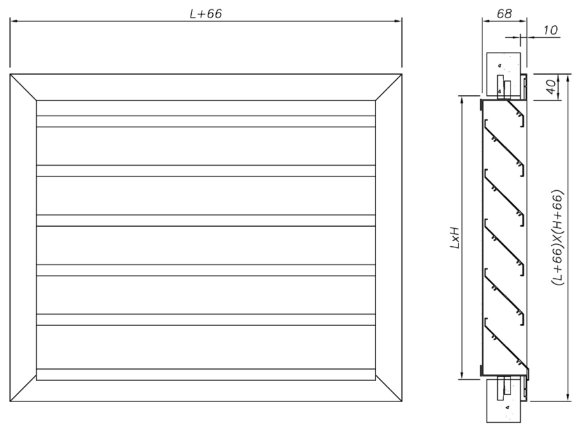
Available in anodised aluminium and galvanised steel sheet (210-TA-Steel) on request, with RAL colour to be defined.

Can be used to form a continuous line.

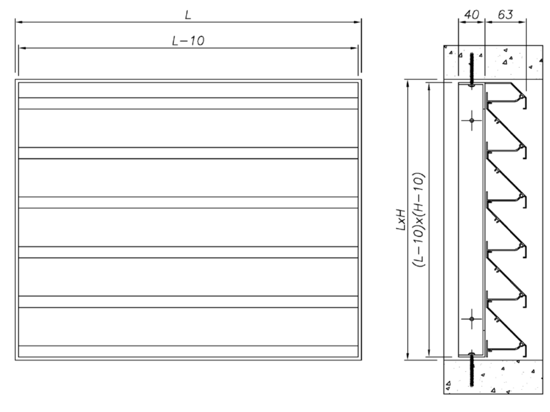
Fresh air intake grilles 200 series

Installation

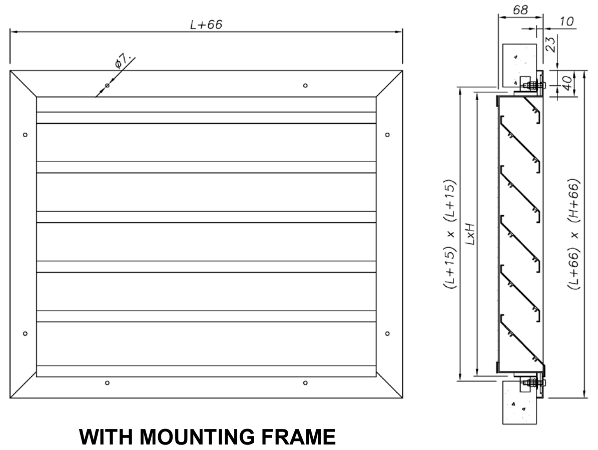
Grilles are supplied with fixing plates in the frame to be built in to the wall. If specified on order, grilles can be supplied either with holes drilled in the frame to allow fixing via screws or with a mounting frame.



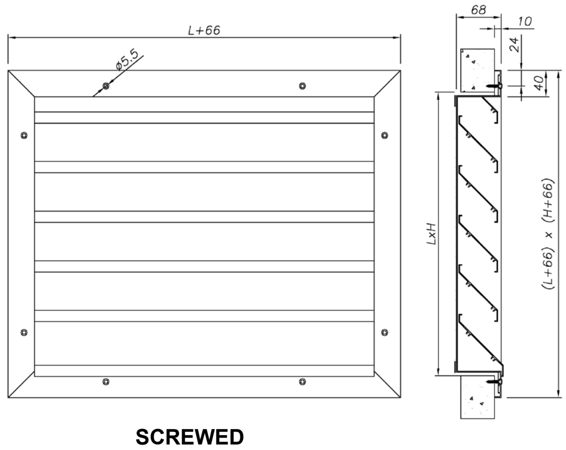
WITH FIXING PLATES



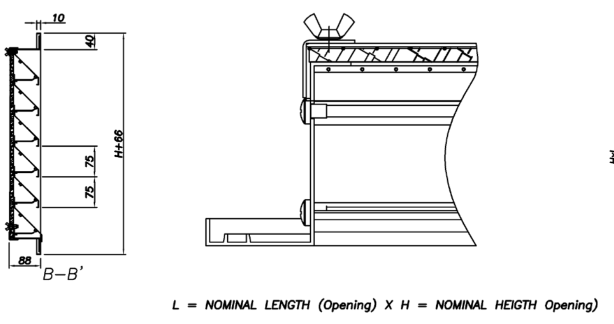
WITHOUT FRAME



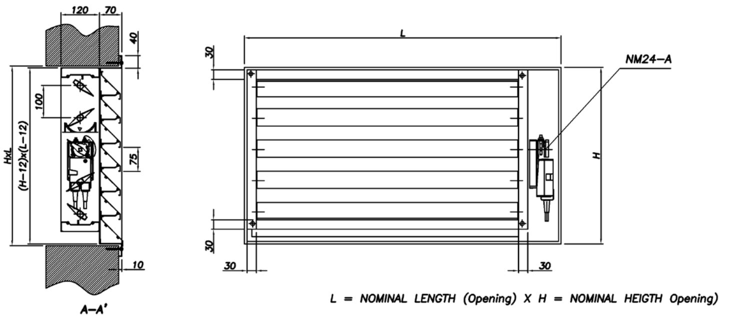
WITH MOUNTING FRAME



SCREWED



WITH FILTER
210-TA-FF



WITH MOTOR-DRIVEN AOBD CONTROL DAMPER
210-TA-AOBD-MT

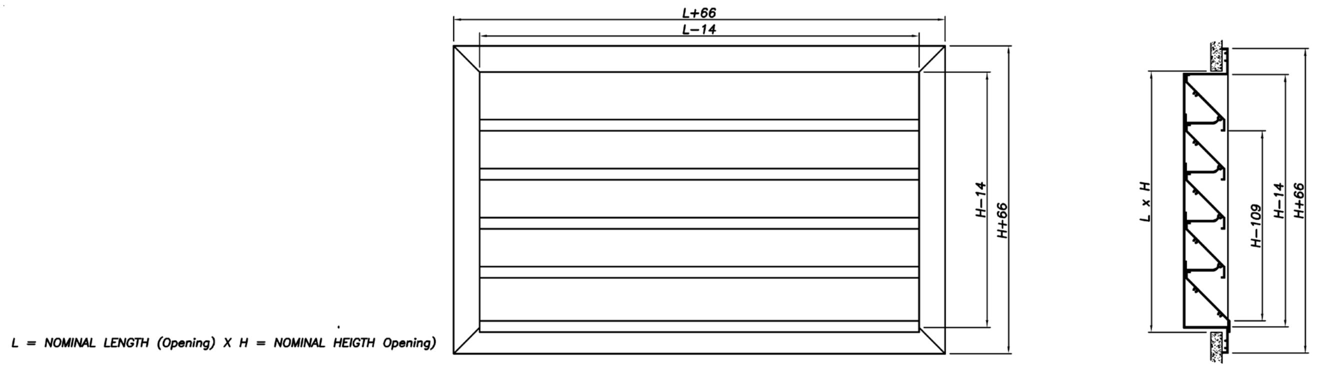
Technical data 210-TA

Table for forced ventilation based on a corrected face velocity of 2.5 m/s, which corresponds to a sound power level of 48 dB(A) when functioning as an extract grille and 52 dB(A) as an fresh air intake grille, considering an area of 1 m^2 (use table 3, Sound Power Level Correction Table, to calculate other areas).

Table 1. Quick selection tables

H \ L	Front area / Air passage (%)	Effective area (%)	500	750	1000	1500	2000	2500	3000
300	61,9%	40,2%	835	1.265	1.695	2.555	3.415	4.275	5.135
400	70,7%	46,0%	1.275	1.930	2.580	3.890	5.200	6.510	7.820
500	76,0%	49,4%	1.710	2.590	3.470	5.230	6.990	8.750	10.510
600	79,5%	51,7%	2.150	3.250	4.350	6.565	8.775	10.985	13.195
700	82,1%	53,3%	2.585	3.915	5.245	7.905	10.565	13.225	15.885
800	84,0%	54,6%	3.020	4.575	6.130	9.240	12.350	15.460	18.570
1000	86,6%	56,3%	3.895	5.900	7.905	11.915	15.925	19.935	23.945
1200	88,4%	57,4%	4.772	7.225	9.680	14.590	19.500	24.410	29.320
1400	89,6%	58,3%	5.640	8.550	11.455	17.266	23.075	28.885	34.695
1600	90,6%	58,9%	6.520	9.875	13.230	19.940	26.650	33.360	40.070
1800	91,3%	59,4%	7.395	11.200	15.010	22.615	30.225	37.835	45.445
2000	91,9%	59,7%	8.270	12.525	16.780	25.290	33.800	42.310	50.820

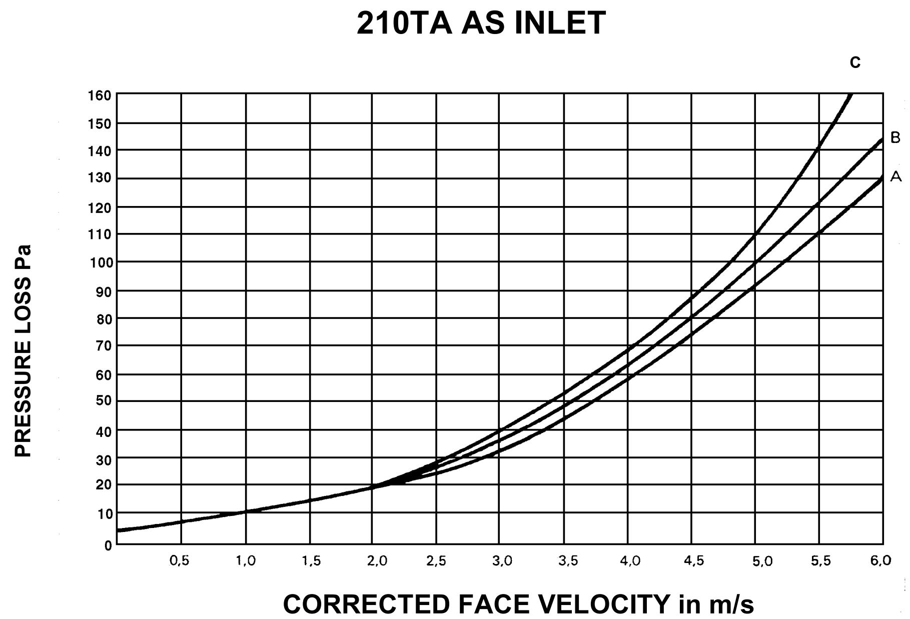
The free/frontal area of an air intake grille with dimensions LxH can be calculated as follows:
The frontal area would be $A_f(m^2)=(L-0.014)*(H-0.109)$. The relation of this area to LxH will be the free area percentage.
Example: For dimensions 1000x800: $A_f(m^2)=(0.986*0.691)=0.6813$ m^2. The area LxH in this case would be 0.8 m^2 so the percentage of free area would be 84%.



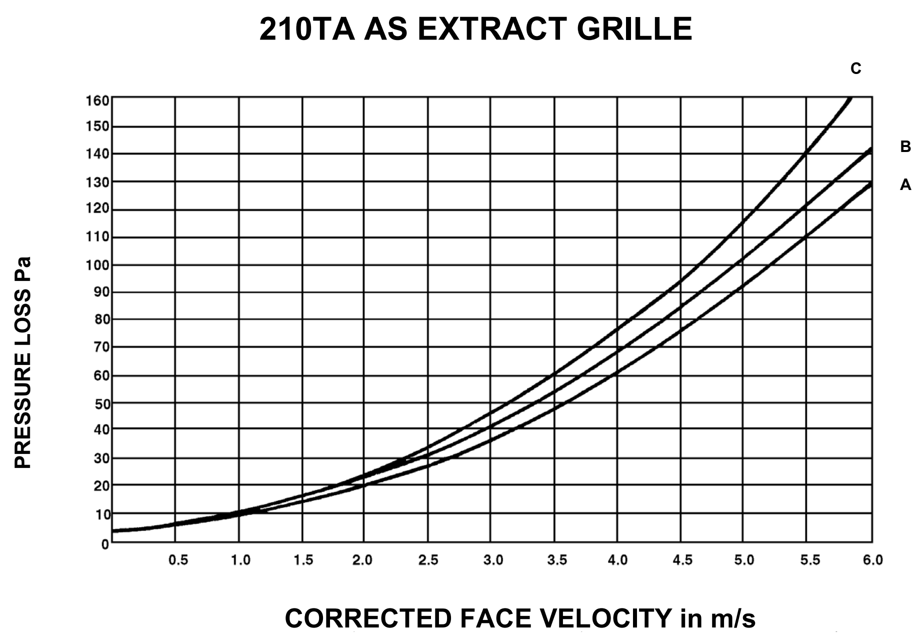
Technical data 210-TA

Pressure loss graphs

The pressure loss is obtained directly from the following graphs.



Graph 1

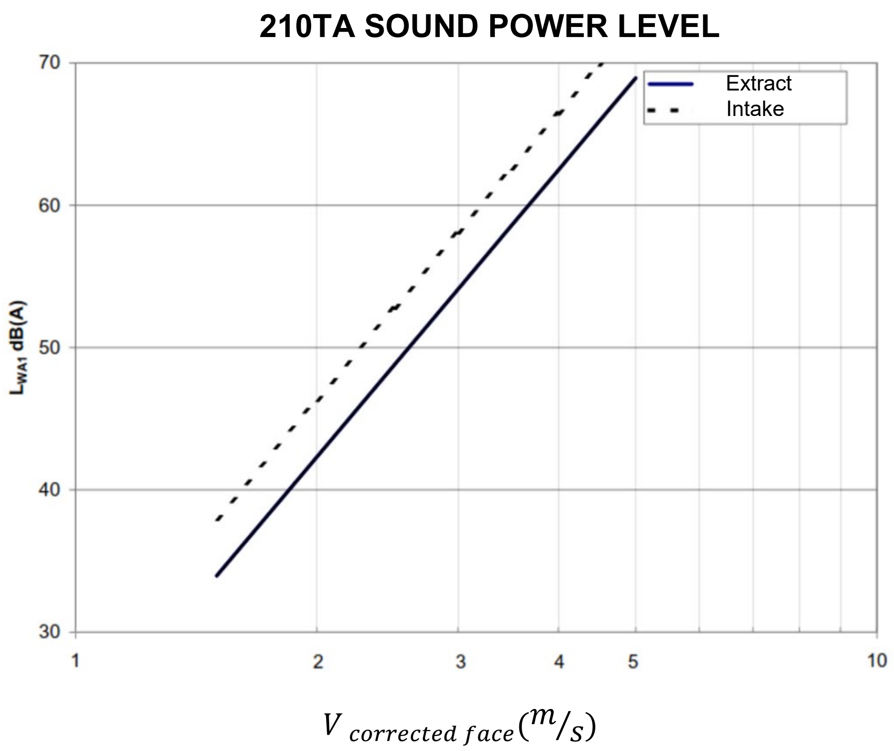


Graph 2

A.- GRILLE
B.- GRILLE WITH ANTI-BIRD MESH
C.- GRILLE WITH ANTI-INSECT MESH

Technical data 210-TA

Sound power level graphs



Graph 3

Correction values according to area. With:

L_{WA1}: Sound power level expressed in dB(A) for A=1 m^2. For different áreas:

L_{WA}:= L_{WA1} + K

Table 3. Sound power correction table

A_{face} [m^2]	0,1	0,2	0,3	0,4	0,5	1	1,5	2	3
K	-10	-8	-5	-4	-3	0	1	2	3

Technical data 210-TA

Selection example

Next, a selection example is shown in order to pre-select the specific dimensions of an air intake or extract grille.
The starting point is the design flow rate, for example, 3000 m^3/h. First of all, the frontal area required to give a face velocity of around 2.5 m/s is calculated, i.e.

$$(3000m^3/h)/(3600s/h) = 2.5\ m/s * A_{frontal}(m^2)\ ;\ A_{frontal}(m^2)=0.333$$

The dimensions are found using the formula in the “Quick selection table” section (L-0,014)x(H-0,109), and according to the desired aspect ratio. In this example we will use 2:1. The frontal length will therefore be 0.816 m and the frontal height approximately 0.408 m.

We would therefore choose an intake with approximate dimensions LxH of 0.82 m x 0.517 m.
The height should be rounded to the nearest 50 mm increment and we should also round the length accordingly, which would give dimensions LxH of 0.85 m x 0.5 m.

The frontal velocity that corresponds to these dimensions according to the frontal area calculated in the “Quick selection table” section would be:

$$A_f(m^2)= (0.85-0,014)x(0.5-0,109)=0.3268\ m^2$$

$$(3000m^3/h)/(3600s/h)= V_{frontal}(m/s)*0.3268\ m^2\ ;\ V_{frontal}(m/s)=2.5\ m/s$$

The pressure loss is obtained directly from graphs 1 and 2. In this case:

Pressure loss with anti-bird mesh = 30 Pa when used for air extract (graph 2) and 28 Pa for intake (graph 1).

The sound power level is obtained from graph 3 and subsequently corrected for area in accordance with table 3.

In this case:
Noise level = (51-5)=46 dB(A) when used as an intake and (48-5)=43 dB(A) as an extract.

Coding

Model

210-TA	Air intake/extract grille with fixing plates for mounting
210-TA-SB	Air intake/extract grille without mounting frame
210-TA-Steel	Air intake/extract grille in galvanised steel sheet

Dimensions

Dimensions LXH	in mm, length of intake 300 to 3000 mm and height 200 to 2000 mm. Nominal dimensions-- length and height -- of the air intake in mm

Accessories

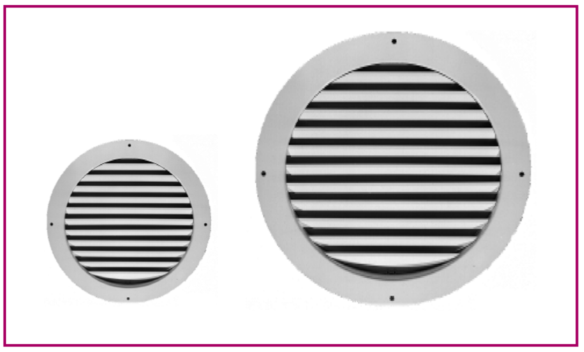
-	With fixing plates for mounting and anti-bird mesh as standard
-T	Bolted
-MM	With mounting frame
-MI	With anti-insect mesh
-FF	With G4 efficiency filter frame
-AOBD	With manual AOBD control damper
-AOBD-MT	With motor-driven AOBD control damper

Treatment

-	Standard finish in natural aluminium
-RAL…	Finish in RAL colour to be defined
- Anodised aluminium	Anodised aluminium air intake
-210-TA-Steel	Galvanised sheet steel air intake
-210-TA-Steel-RAL…	Galvanised sheet steel air intake painted in RAL colour to be defined

Example: 210-TA-SB-MI-1200x500-RAL9010. Air intake/extract grille with no frame, complete with 1200x500 insect mesh, painted in RAL colour 9010.

Circular weather louvres TAC-200

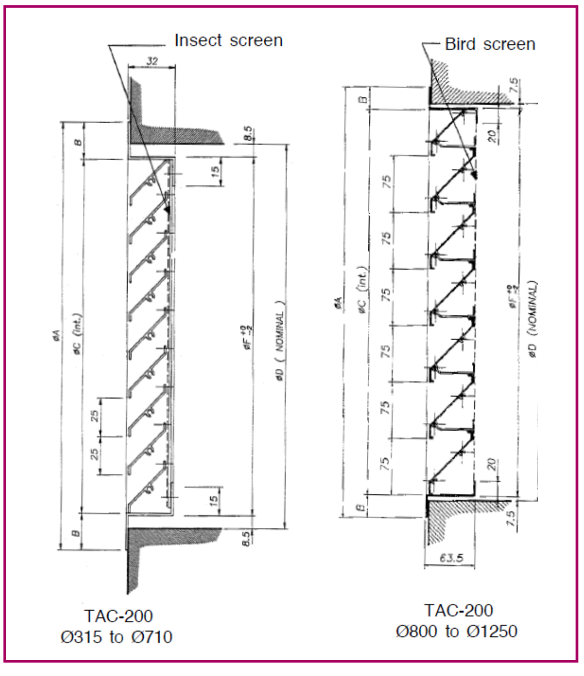


Description

Weather louvre, model TAC-200.

Finishes

Painted in white RAL 9010.
Special finishes available upon request.



TAC-200

Circular weather louvre, constructed in extruded aluminium.
Its design and blade shape avoid vision through the louvre.
It avoids penetration of rain water, snow, etc., since it has been principally designed for outdoor installation.
Its circular shape makes it ideal for those installations where, for architectural reasons, conventional rectangular louvres are not acceptable.

Fixing

The louvre frame is provided with holes for fixing by means of screws.

Identification

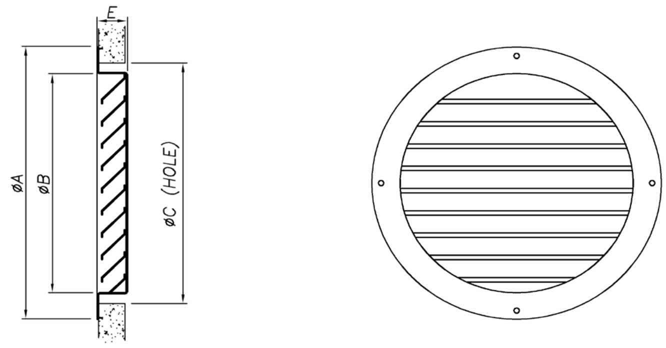
Weather louvres TAC-200 are used in : commercial and industrial buildings, dwellings, transformer houses, machine rooms, etc.

TAC-200	*Model*
with birdscreen with insectscreen	*Accessory (depending on size incorporates one or the other)*
Ø (mm)	*Nominal diameter in mm (from 315 upto 1250 according to table)*

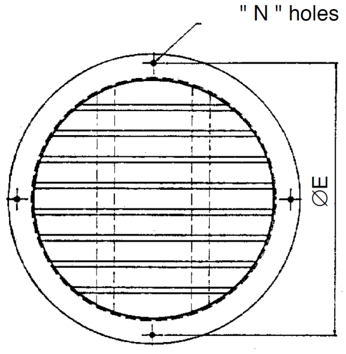
Get In Touch
Call: 0845 6880112
Email: info@adremit.co.uk
Our Address
Puravent, Adremit Limited, Unit 5a, Commercial Yard, Settle, North Yorkshire, BD24 9RH

General dimensions

In the following general dimensions for the TAC-200 louvres are given in two tables : from Ø315 to Ø710 with insectscreen and from Ø800 to Ø1250 with birdscreen.



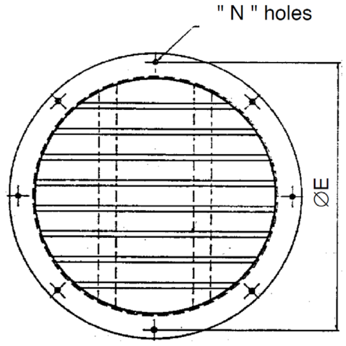
MODEL	Ø A	Ø B	Ø C	E
125	181	121	145	32
160	216	156	180	
200	256	196	220	
250	306	246	270	
315	375	295	315	
400	460	380	400	
450	510	430	450	
500	560	480	500	
630	690	610	630	
710	770	690	710	
800	882	782	800	63,5
1000	1082	982	1000	
1250	1332	1232	1250	



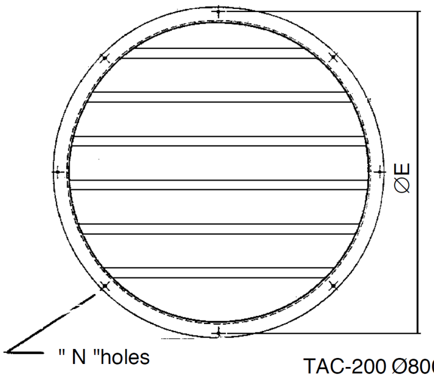
TAC-200 Ø315 to Ø500

Accessories

In standard finish the TAC louvres incorporate an insectscreen from size 315 to 710 and a birdscreen from 800 to 1250.

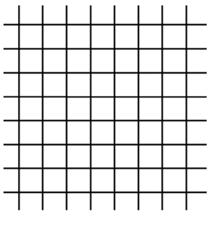


TAC-200 Ø630 to Ø710



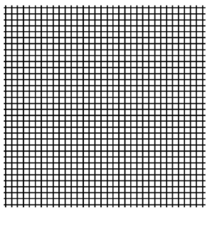
TAC-200 Ø800 to Ø1250

ANTI-BIRD MESH



12,5 X 12,5 mm

ANTI-INSECT MESH



1,6 X 1,6 mm

Get In Touch
Call: 0845 6880112
Email: info@adremit.co.uk
Our Address
Puravent, Adremit Limited, Unit 5a, Commercial Yard, Settle, North Yorkshire, BD24 9RH

Graphs for pressure loss of TAC-200

In the following graphs the pressure loss is given for the TAC-200 louvres. For a given air flow rate (m³/h) the pressure loss (in Pa) can be obtained.
In all graphs the effect of the insectscreen or birdscreen (according to louvre size) are already incorporated.

Q		Dim.	80	100	125	160	200	250	315	400	450	500	630	710
(m³/h)	(l/s)	A_{eff} (m²)	0,0026	0,0041	0,0063	0,0101	0,0155	0,0238	0,0370	0,0616	0,0792	0,0991	0,1623	0,2094
20	5,6	Veff (m/s)	2,1											
		Ps (Pa)	20											
		Lw (dB(A))	23											
30	8,3	Veff (m/s)	3,2	2,1										
		Ps (Pa)	44	19										
		Lw (dB(A))	33	23										
40	11,1	Veff (m/s)	4,2	2,7	1,8									
		Ps (Pa)	79	33	14									
		Lw (dB(A))	40	30	20									
50	13,9	Veff (m/s)	5,3	3,4	2,2									
		Ps (Pa)	123	52	22									
		Lw (dB(A))	45	35	26									
65	18,1	Veff (m/s)	6,9	4,4	2,9	1,8								
		Ps (Pa)	208	87	37	14								
		Lw (dB(A))	52	42	32	22								
80	22,2	Veff (m/s)		5,5	3,5	2,2								
		Ps (Pa)		132	55	21								
		Lw (dB(A))		47	37	27								
100	27,8	Veff (m/s)		6,8	4,4	2,8	1,8							
		Ps (Pa)		206	87	33	14							
		Lw (dB(A))		53	43	32	23							
150	41,7	Veff (m/s)			6,7	4,1	2,7	1,8						
		Ps (Pa)			195	75	32	13						
		Lw (dB(A))			53	42	33	23						
200	55,6	Veff (m/s)				5,5	3,6	2,3	1,5					
		Ps (Pa)				133	56	24	8					
		Lw (dB(A))				49	40	30	23					
250	69,4	Veff (m/s)				6,9	4,5	2,9	1,9					
		Ps (Pa)				208	88	37	12					
		Lw (dB(A))				55	45	36	28					
300	83,3	Veff (m/s)					5,4	3,5	2,3	1,4				
		Ps (Pa)					127	54	17	6				
		Lw (dB(A))					50	40	33	21				
400	111,1	Veff (m/s)						4,7	3,0	1,8	1,4			
		Ps (Pa)						96	31	11	7			
		Lw (dB(A))						48	40	28	23			
500	138,9	Veff (m/s)						5,8	3,8	2,3	1,8	1,4		
		Ps (Pa)						150	48	17	11	7		
		Lw (dB(A))						53	45	34	28	23		
600	166,7	Veff (m/s)							4,5	2,7	2,1	1,7		
		Ps (Pa)							70	25	15	10		
		Lw (dB(A))							50	38	33	28		
700	194,4	Veff (m/s)								3,2	2,5	2,0	1,2	
		Ps (Pa)								34	21	13	5	
		Lw (dB(A))								42	37	32	21	
800	222,2	Veff (m/s)								3,6	2,8	2,2	1,4	
		Ps (Pa)								45	27	17	6	
		Lw (dB(A))								46	40	35	24	
900	250,0	Veff (m/s)								4,1	3,2	2,5	1,5	1,2
		Ps (Pa)								57	34	22	8	5
		Lw (dB(A))								48	43	38	27	21
1000	277,8	Veff (m/s)								4,5	3,5	2,8	1,7	1,3
		Ps (Pa)								70	42	27	10	6
		Lw (dB(A))								51	45	40	30	24

Puravent

Get In Touch

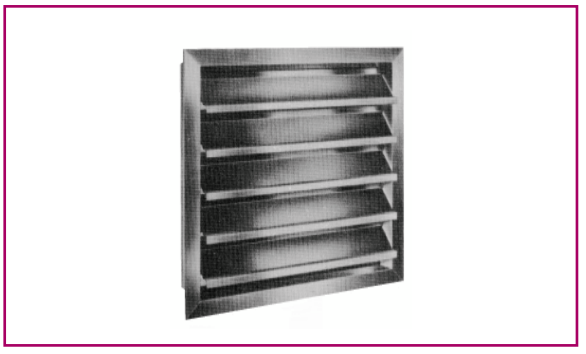
Call: 0845 6880112
Email: info@adremit.co.uk

Our Address

Puravent, Adremit Limited, Unit 5a, Commercial Yard,
Settle, North Yorkshire, BD24 9RH

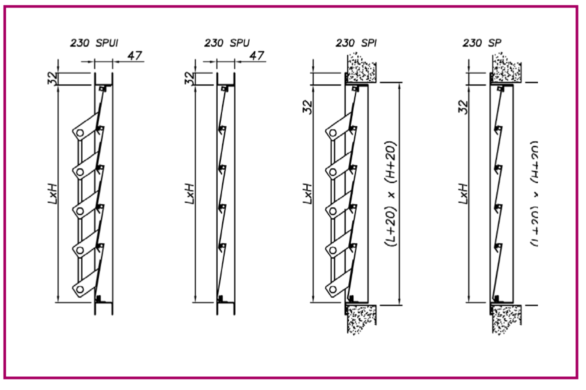
Q		Dim.	450	500	630	710	800	1000	1250
(m^3/h)	**(l/s)**	**A_{eff} (m^2)**	0,0792	0,0991	0,1623	0,2094	0,2701	0,4348	0,6999
1250	347,2	Veff (m/s)	4,4	3,5	2,1	1,7	1,3		
		Ps (Pa)	66	42	16	9	2		
		Lw (dB(A))	51	46	35	29	24		
1500	416,7	Veff (m/s)	5,3	4,2	2,6	2,0	1,5		
		Ps (Pa)	95	61	23	14	3		
		Lw (dB(A))	55	51	40	34	28		
1750	486,1	Veff (m/s)		4,9	3,0	2,3	1,8	1,1	
		Ps (Pa)		83	31	19	4	2	
		Lw (dB(A))		54	43	38	32	21	
2000	555,6	Veff (m/s)			3,4	2,7	2,1	1,3	
		Ps (Pa)			40	24	6	2	
		Lw (dB(A))			47	41	35	25	
2250	625,0	Veff (m/s)			3,9	3,0	2,3	1,4	
		Ps (Pa)			51	31	7	3	
		Lw (dB(A))			50	44	38	28	
2500	694,4	Veff (m/s)			4,3	3,3	2,6	1,6	
		Ps (Pa)			63	38	9	3	
		Lw (dB(A))			52	47	41	30	
3000	833,3	Veff (m/s)				4,0	3,1	1,9	1,2
		Ps (Pa)				54	13	5	2
		Lw (dB(A))				51	45	35	24
4000	1111,1	Veff (m/s)					4,1	2,6	1,6
		Ps (Pa)					23	9	3
		Lw (dB(A))					52	42	31
5000	1388,9	Veff (m/s)						3,2	2,0
		Ps (Pa)						14	5
		Lw (dB(A))						47	37
6000	1666,7	Veff (m/s)						3,8	2,4
		Ps (Pa)						20	8
		Lw (dB(A))						52	41
7000	1944,4	Veff (m/s)							2,8
		Ps (Pa)							10
		Lw (dB(A))							45
8000	2222,2	Veff (m/s)							3,2
		Ps (Pa)							14
		Lw (dB(A))							48
9000	2500,0	Veff (m/s)							3,6
		Ps (Pa)							17
		Lw (dB(A))							51
10000	2777,8	Veff (m/s)							4,0
		Ps (Pa)							21
		Lw (dB(A))							54

Overpressure dampers serie 200, type 230 SP



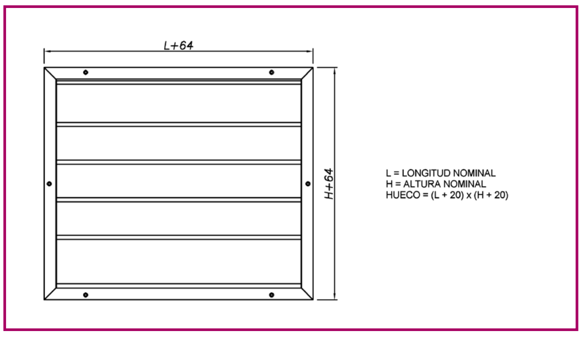
Description
Overpressure damper model 230 SP.

Finishes
Natural aluminium (without anodising).
Special finishes are available upon request.



General dimensions
See page 17. Other dimensions according to the drawings on the left.

230 SP
Overpressure damper constructed in extruded aluminium. Incorporates a strip on the blades to obtain a higher shutter efficiency and noise reduction.
Can be provided upon request with frame in “u” shape, inverted blades, interconnected blades, etc...



Fixing
Dampers 230 SP incorporate holes in the frame for wall or duct fixing by means of screws or rivets.

230 SP	*Model*
L x H (mm)	*Dimensions width x height mm* *Nominal = air passage*

Identification
Are applicable in discharge of air by overpressure in, for example, machine rooms, ventilation equipment, pressurised zones, etc...

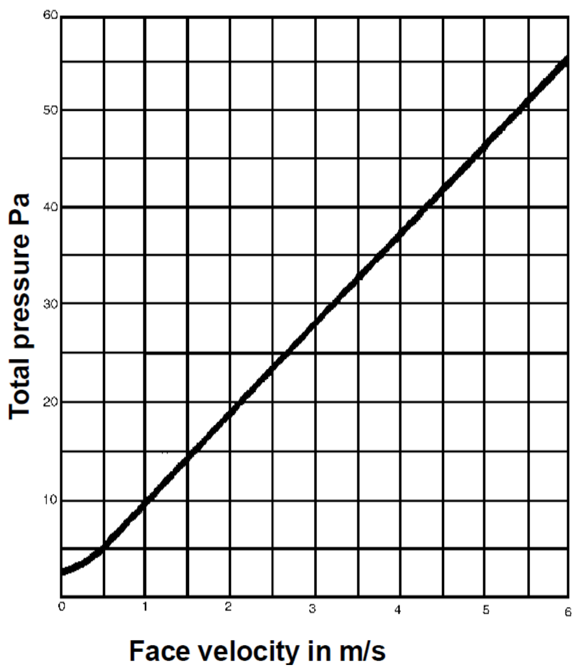
Example of selection

For a known air flow rate which should pass through the damper (e.g. 3000 m^3/h), and setting, for example, the face velocity at 4 m/s, the frontal area (A_f) of the damper can be obtained by using the following equation:

$A_{(f)} = Q(m^3/h) / V_f (m/s) \cdot 3600 = 3.000 / 4 \cdot 3600 = 0{,}21\ m^2$

With which we obtain a damper 230 SP of 450 x 480 or equivalent dimensions
To determine the pressure loss the following graph should be used. In the damper of the above example the pressure loss will be about 37 Pa.

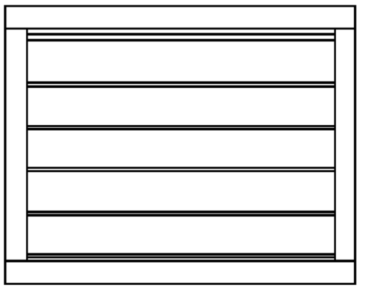
Graph for relationship between velocity and total pressure.



Standard dimensions

The following dimensions are normalised for overpressure dampers. With respect to the width, it is possible to provide intermediate dimensions.

H \ L	500	750	1.000	1.500	2.000
100					
200					
300					
400					
500					
600					
700					
800					
900					
1000					
1100					
1200					
1300					



THIS CATALOGUE IS COPYRIGHTED.
Partial or full reproduction of its content is strictly prohibited without express written authorisation from KOOLAIR, S.L.

CATALOG No. 0198

KOOLAIR, S.L.
Calle Urano, 26
Poligono industrial nº 2 – La Fuensanta
28936 Móstoles - Madrid - (España)
Tel: +34 91 645 00 33
Fax: +34 91 645 69 62
e-mail: info@koolair.com

www.koolair.com

Get In Touch

Call: 0845 6880112
Email: info@adremit.co.uk

Our Address

Puravent, Adremit Limited, Unit 5a, Commercial Yard,
Settle, North Yorkshire, BD24 9RH