Applications

Acoustic Louvres are ideally suited to installations that require the passing of large volumes of air with only a moderate noise reduction from source to receiver. For increased attenuations grill silencers can be mounted behind standard weather louvres. Typical uses are on:

- Cooling Towers
- Air cooled chillers
- Plant-room ventilation
- Enclosure relief air
- Acoustic barriers

Standard Construction

Casings are manufactured from prime quality pre-galvanised mild steel sheet. 1mm thick is used when both the width and height are less than 1500mm. Over 1500mm 1.2mm thick sheet is used. The maximum size in one piece is 2400 x 3000mm. Sizes larger than this will be made in multi sections. The louvre blades are always made from 1mm pre-galvanised mild steel sheet, for widths over 1800mm rear support straps are incorporated to prevent blade distortion.

The acoustic absorption material is retained behind 0.6mm thick pre-galvanised perforated sheet steel. For exposed to weather applications a polyester fabric facing is incorporated behind the perforated metal. This fabric does not affect the acoustic performance. Applications where grease and oil are present should have the acoustic material faced with Melinex, this does however reduce the acoustic performance.

Louvre Silencers

These are a special form of the standard rectangular silencer, the splitters however are blunt ended on both intake and discharge to increase the low frequency attenuation. Although this increases the aerodynamic loss the relatively low face velocities used in these applications makes the overall loss little different to that of acoustic louvres. To minimize these losses the louvre silencers should be mounted away from the standard weather louvre. The product data sheet, page 56 gives suggested minimum distances.

Non-Standard Materials and Finishes

The louvres can be manufactured in alternative materials to suit any special requirements. Aluminum, stainless steel, and Colorbond are the most common alternative materials. The standard louvre is supplied as a plain unpainted galvanised steel finish. If required the steel louvres can be supplied painted or powder coated to suit the architects colour scheme. Aluminum louvres can be anodized or powder coated.

Care and Maintenance

Acoustic Louvres are generally subject to normal weather conditions. Inspection for corrosion should be part of a long term maintenance program, that would be determined by the operating environment. With no moving parts once installed there are no requirements for periodic maintenance. Louvre silencers are subject to the same care and maintenance requirements as detailed in the attenuator product information sheets.

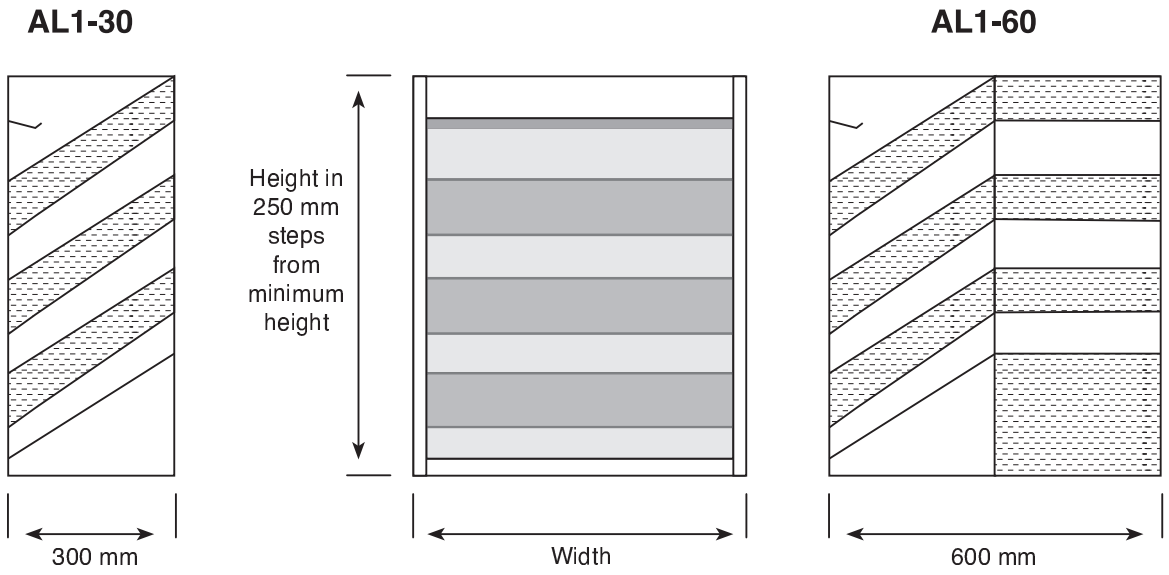
Ancillaries

» 19 x 19 x 1mm galvanised wire bird guard can be fitted to the rear of the louvres. Smaller sized vermin guard can be fitted, this however will affect the air pressure drop across the louvre.

» Flashing frames are made from 1.2mm folded galvanised steel and are supplied in standard lengths for on site fitting by others. 50 x 50 x 3mm rolled steel mounting frames can also be supplied. These are also supplied in standard lengths and are un-drilled for on site fitting

» Matching non-acoustic louvres can be supplied where the building line must be maintained.

» Access doors can also be incorporated into both the acoustic and non-acoustic louvres.



Maximum size in one piece	2400mm W x 3000mm H
Minimum size available	450mm W x 500mm H

Acoustic Performance - Type AL1

	Model	Octave Band Centre Frequency Hz							
		63	125	250	500	1K	2K	4K	8K
Noise Reduction dB	AL1-30	9	12	15	18	21	22	21	20
	AL1-60	14	17	22	27	33	35	33	30

Transmission Loss

This is measured in accordance with AS 1191 & AS 1276 using the "Reverberant Room to Reverberant Room" technique. This is sometimes called the Sound Reduction Index. These figures can be used in a similar manner to Insertion Loss of Duct Silencers.

Noise Reduction

This is the difference in Sound Pressure Levels between a reverberant enclosure and the free field noise external to the louvre. In general the Transmission Loss is 6dB lower than the noise reduction figures.

Aero Dynamic Loss

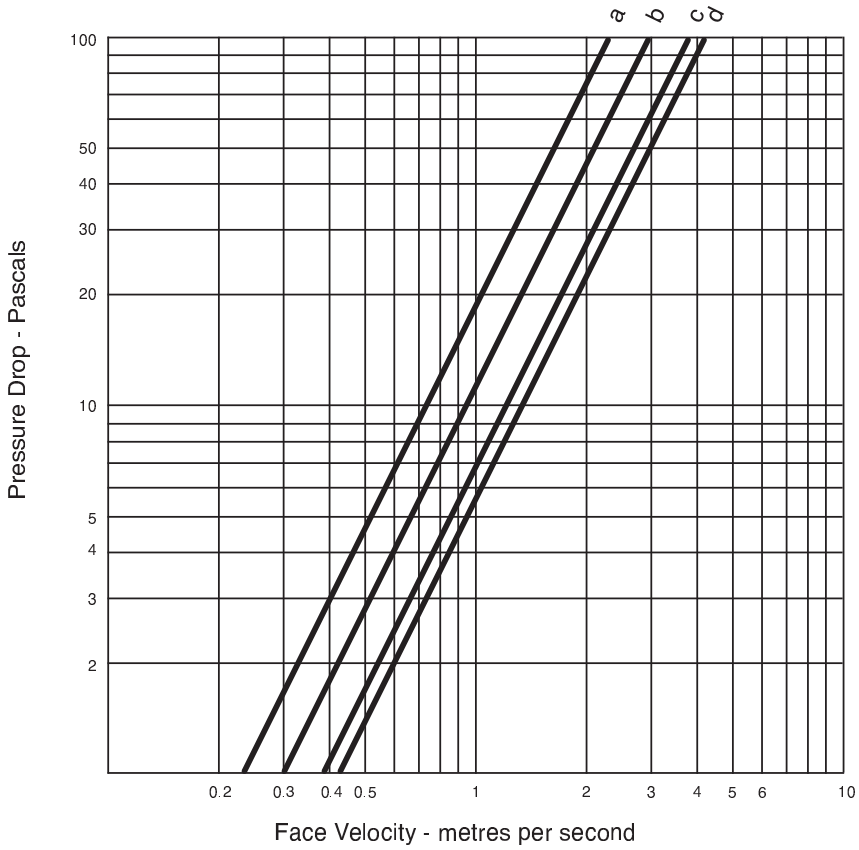
The following graphs give the Pressure Loss for a normal acoustic louvre installation ie. for air entry from external to a building and discharging into a plenum area or plantroom.

For ducted discharge and air exhaust applications see correction factors on Page 100 Louvre Applications.

Aerodynamic Loss

Type AL1-30

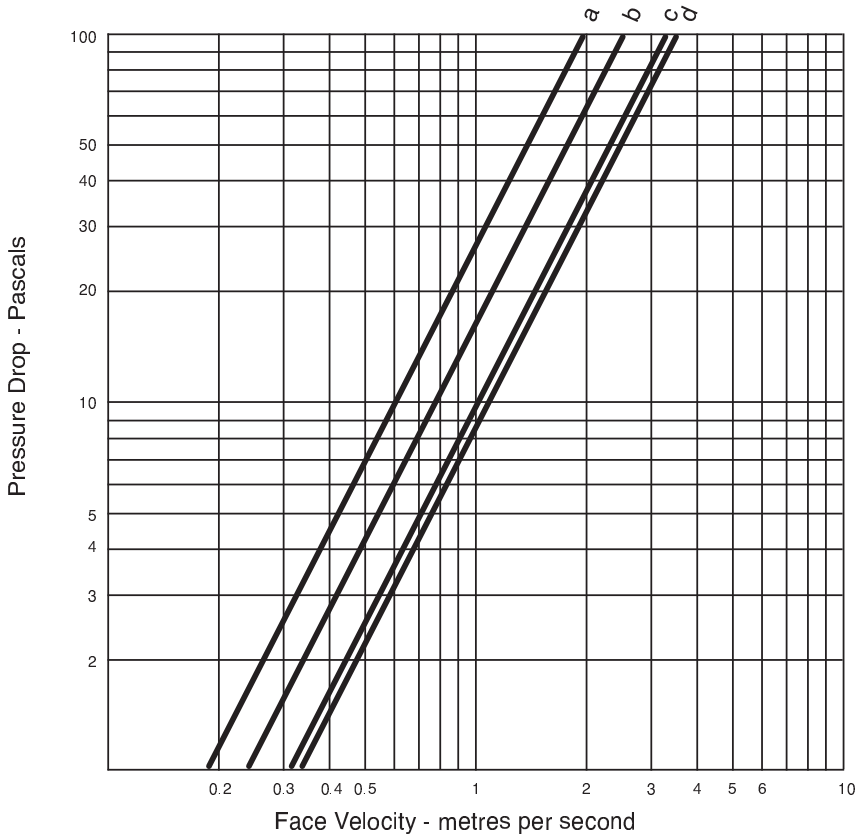
Louvre height (mm)		
a	=	500
b	=	750
c	=	1750
d	=	3000

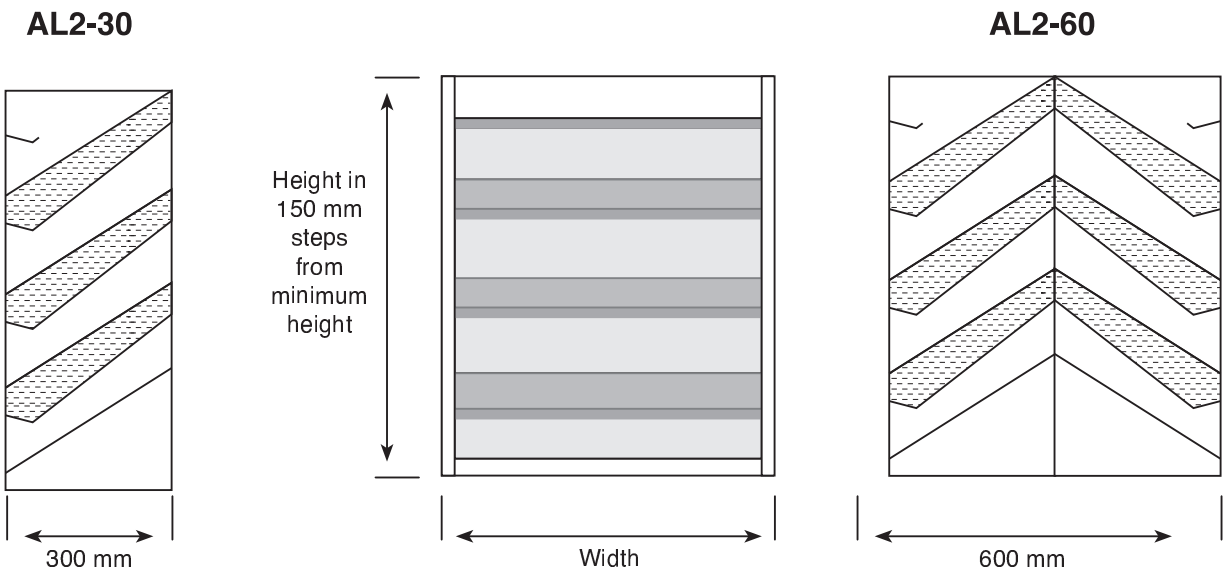


Aerodynamic Loss

Type AL1-60

Louvre height (mm)		
a	=	500
b	=	750
c	=	1750
d	=	3000





Maximum size in one piece	2400mm W x 3000mm H
Minimum size available	450mm W x 450mm H

Acoustic Performance - Type AL2

	Model	Octave Band Centre Frequency Hz							
		63	125	250	500	1K	2K	4K	8K
Noise Reduction dB	AL2-30	9	11	12	17	24	26	24	21
	AL2-60	13	15	18	26	37	42	39	37

Transmission Loss

This is measured in accordance with AS 1191 & AS 1276 using the "Reverberant Room to Reverberant Room" technique. This is sometimes called the Sound Reduction Index. These figures can be used in a similar manner to Insertion Loss of Duct Silencers.

Noise Reduction

This is the difference in Sound Pressure Levels between a reverberant enclosure and the free field noise external to the louvre. In general the Transmission Loss is 6dB lower than the noise reduction figures.

Aero Dynamic Loss

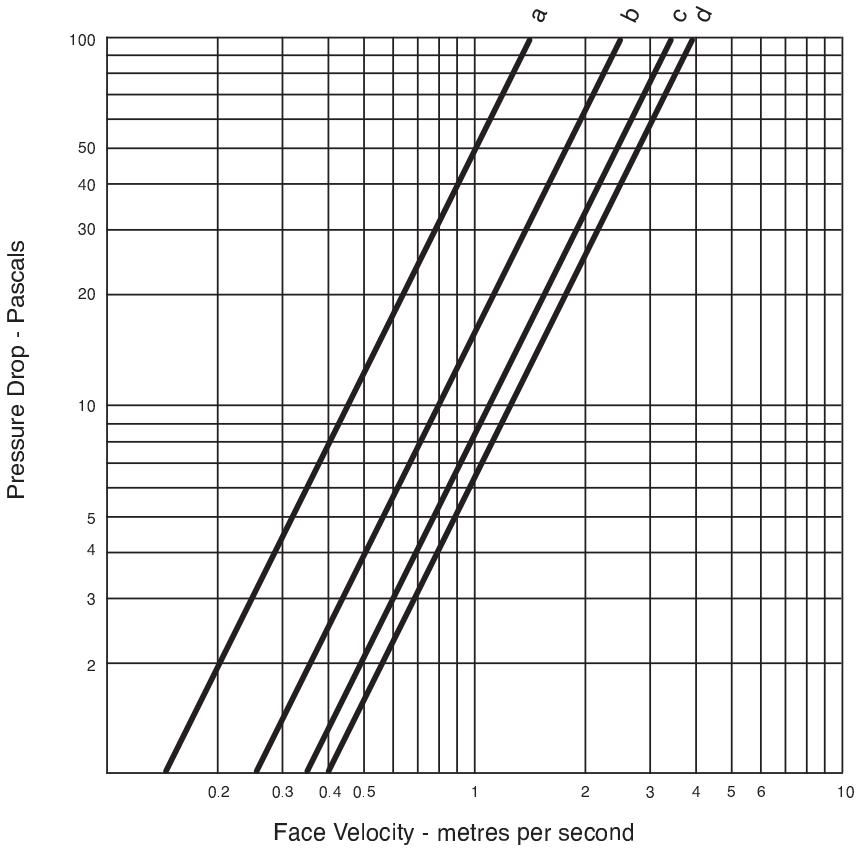
The following graphs give the Pressure Loss for a normal acoustic louvre installation ie. for air entry from external to a building and discharging into a plenum plantroom.

For ducted discharge and air exhaust applications see correction factors on Page 100 Louvre Applications.

Aerodynamic Loss

Type AL2-30

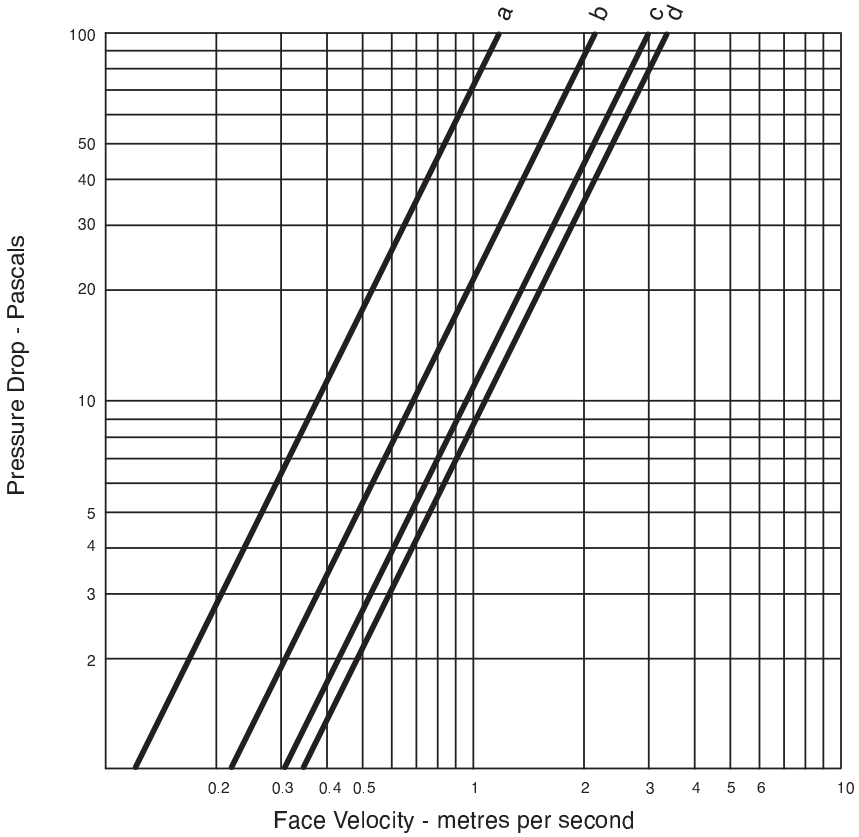
Louvre height (mm)		
a	=	450
b	=	750
c	=	1800
d	=	3000

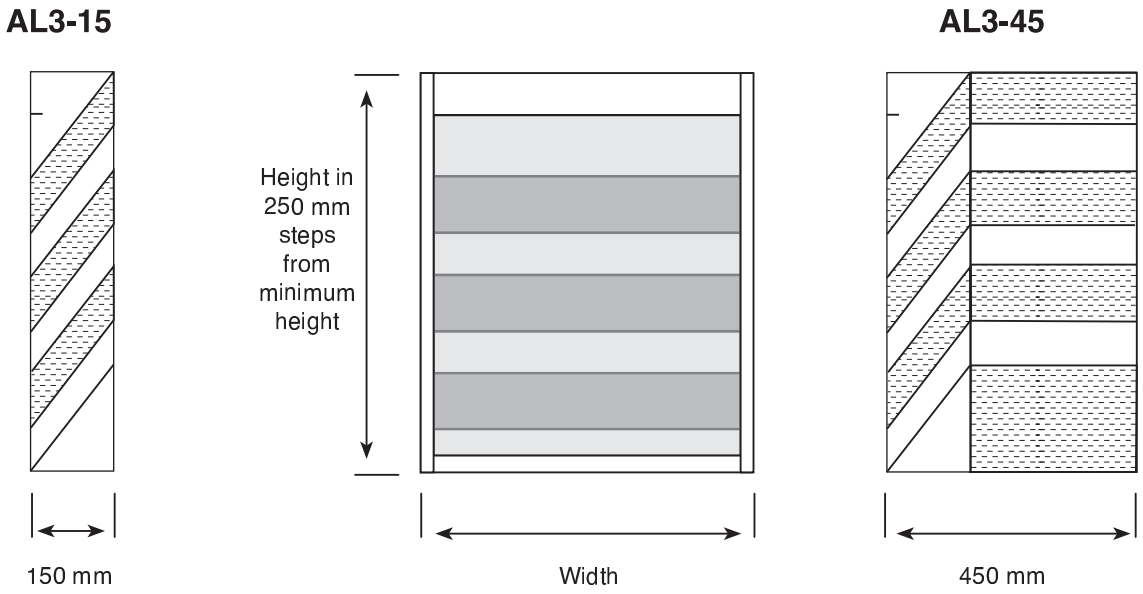


Aerodynamic Loss

Type AL2-60

Louvre height (mm)		
a	=	450
b	=	750
c	=	1800
d	=	3000





Maximum size in one piece 2400mm W x 2900mm H

Minimum size available 450mm W x 400mm H

Acoustic Performance - Type AL3

	Model	Octave Band Centre Frequency Hz							
		63	125	250	500	1K	2K	4K	8K
Noise Reduction dB	AL3-15	8	10	12	15	20	25	25	22
	AL3-45	12	15	18	25	33	35	35	32

Transmission Loss

This is measured in accordance with AS 1191 & AS 1276 using the "Reverberant Room to Reverberant Room" technique. This is sometimes called the Sound Reduction Index. These figures can be used in a similar manner to Insertion Loss of Duct Silencers.

Noise Reduction

This is the difference in Sound Pressure Levels between a reverberant enclosure and the free field noise external to the louvre. In general the Transmission Loss is 6dB lower than the noise reduction figures.

Aero Dynamic Loss

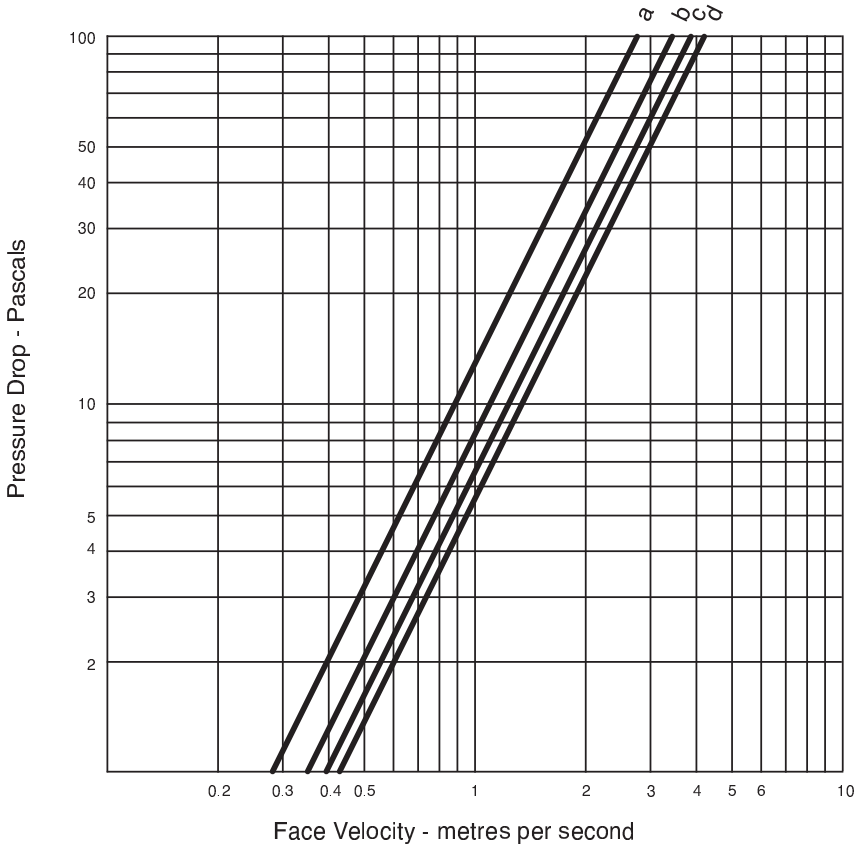
The following graphs give the Pressure Loss for a normal acoustic louvre installation ie. for air entry from external to a building and discharging into a plenum plantroom.

For ducted discharge and air exhaust applications see correction factors on Page 100 Louvre Applications.

Aerodynamic Loss

Type AL3-15

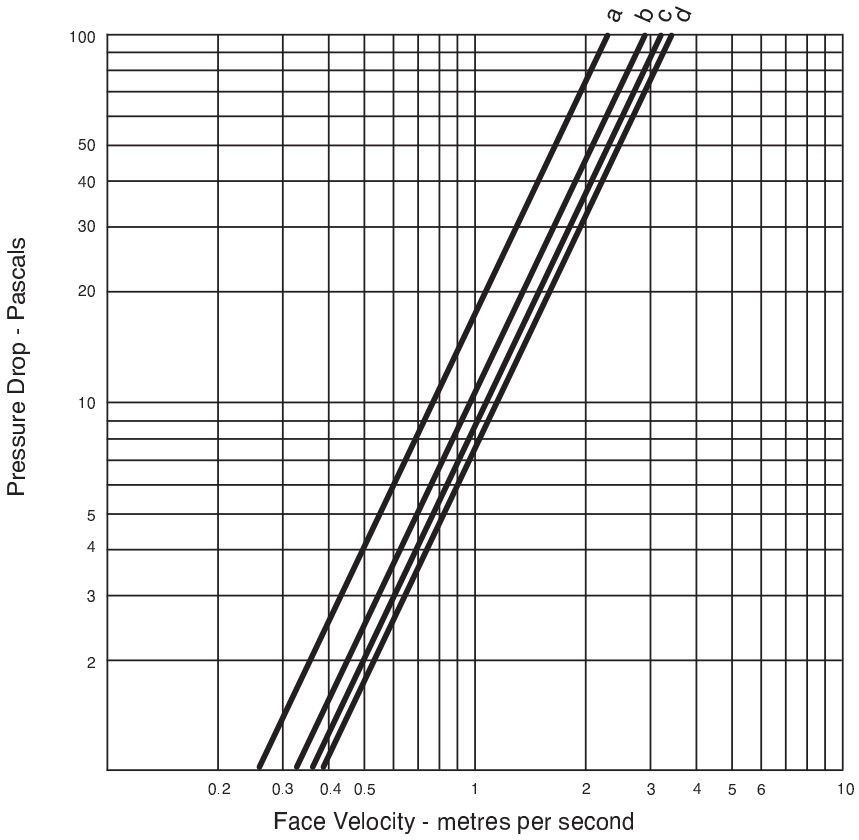
Louvre height (mm)		
a	=	400
b	=	650
c	=	1400
d	=	2900



Aerodynamic Loss

Type AL3-45

Louvre height (mm)		
a	=	400
b	=	650
c	=	1400
d	=	2900



Weights - Type AL1-30

Weights Kg

Height mm	Width mm							
	900	1200	1500	1800	2100	2400	2700	3000
750	29	39	49	59	69	79	89	99
1000	38	50	63	76	89	101	115	128
1250	47	62	78	93	109	122	141	157
1500	55	73	92	110	129	144	168	186
1750	64	84	106	127	149	166	194	216
2000	72	95	120	144	169	188	220	245
2250	81	106	134	161	189	209	247	274
2500	89	117	148	177	209	231	273	303
2750	98	128	162	194	229	253	299	333
3000	106	139	177	211	249	275	326	362

Weights - Type AL1-60

Weights Kg

Height mm	Width mm							
	900	1200	1500	1800	2100	2400	2700	3000
750	57	77	96	115	134	154	173	192
1000	74	98	124	148	173	196	224	249
1250	91	120	151	181	212	239	276	306
1500	107	142	179	214	251	281	327	363
1750	124	163	206	247	290	323	378	421
2000	141	185	234	280	329	366	430	478
2250	157	207	262	313	368	408	481	535
2500	174	228	289	346	407	451	532	592
2750	191	250	317	379	446	493	584	649
3000	207	272	344	412	485	536	635	706

Weights - Type AL2-30

Weights Kg

Height mm	Width mm							
	900	1200	1500	1800	2100	2400	2700	3000
600	22	30	37	45	52	60	67	75
750	29	38	48	58	67	76	87	97
900	35	47	59	70	83	93	107	119
1050	42	55	69	83	98	109	127	141
1200	48	64	80	96	113	126	147	163
1350	55	72	91	109	128	142	167	186
1500	61	80	102	122	143	159	187	208
1650	68	89	112	134	158	175	207	230
1800	74	97	123	147	173	192	227	252
1950	80	106	134	160	188	208	247	274
2100	86	114	145	173	203	225	267	296
2250	93	122	155	186	219	241	287	319
2400	99	131	166	199	234	258	307	341
2550	106	139	177	211	249	274	327	363
2700	112	148	187	224	264	291	346	385
2850	118	156	198	237	279	307	366	407
3000	125	165	209	250	294	324	386	430

Weights - Type AL2-60

Weights Kg

Height mm	Width mm							
	900	1200	1500	1800	2100	2400	2700	3000
600	45	60	75	90	105	120	134	149
750	58	76	96	115	135	152	174	194
900	71	93	118	141	165	185	214	238
1050	84	110	139	166	195	218	254	283
1200	96	127	160	192	226	251	294	327
1350	109	144	182	218	256	284	334	371
1500	122	161	203	243	286	317	374	416
1650	135	178	225	269	316	350	414	460
1800	147	194	246	295	346	383	454	504
1950	160	211	268	320	377	416	493	549
2100	173	228	289	346	407	449	533	593
2250	186	245	311	372	437	482	573	637
2400	198	262	332	397	467	515	613	682
2550	211	279	354	423	498	548	653	726
2700	224	295	375	448	528	581	693	770
2850	237	312	396	474	558	614	733	815
3000	250	329	418	500	588	647	773	859

Weights - Type AL3-15

Weights Kg

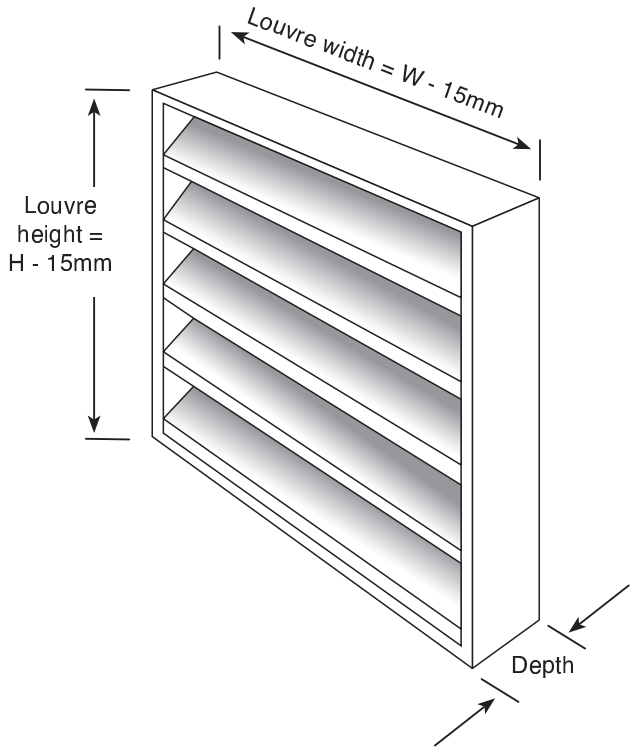
Height mm	Width mm							
	900	1200	1500	1800	2100	2400	2700	3000
650	25	33	41	50	58	66	75	83
900	32	42	53	64	75	85	97	108
1150	39	52	65	78	92	103	119	132
1400	46	61	77	92	108	121	141	157
1650	54	71	89	107	125	140	163	182
1900	61	80	101	121	142	158	186	206
2150	68	89	113	135	159	176	208	231
2400	75	99	125	149	176	195	230	256
2650	82	108	137	164	192	213	252	280
2900	90	117	149	178	209	231	274	305

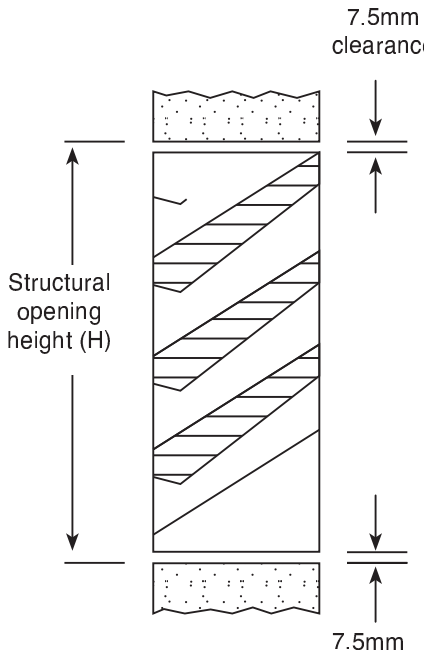
Weights - Type AL3-45

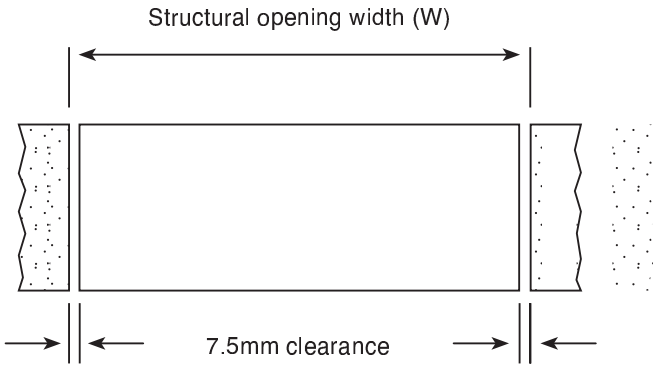
Weights Kg

Height mm	Width mm							
	900	1200	1500	1800	2100	2400	2700	3000
650	48	65	81	97	113	129	146	162
900	62	83	104	125	146	165	189	210
1150	76	101	127	153	179	201	232	258
1400	90	119	151	180	212	237	275	306
1650	105	138	174	208	244	272	319	354
1900	119	156	197	236	277	308	362	402
2150	133	174	220	264	310	344	405	450
2400	147	192	244	291	343	380	448	498
2650	161	211	267	319	375	415	491	546
2900	175	229	290	347	408	451	535	594

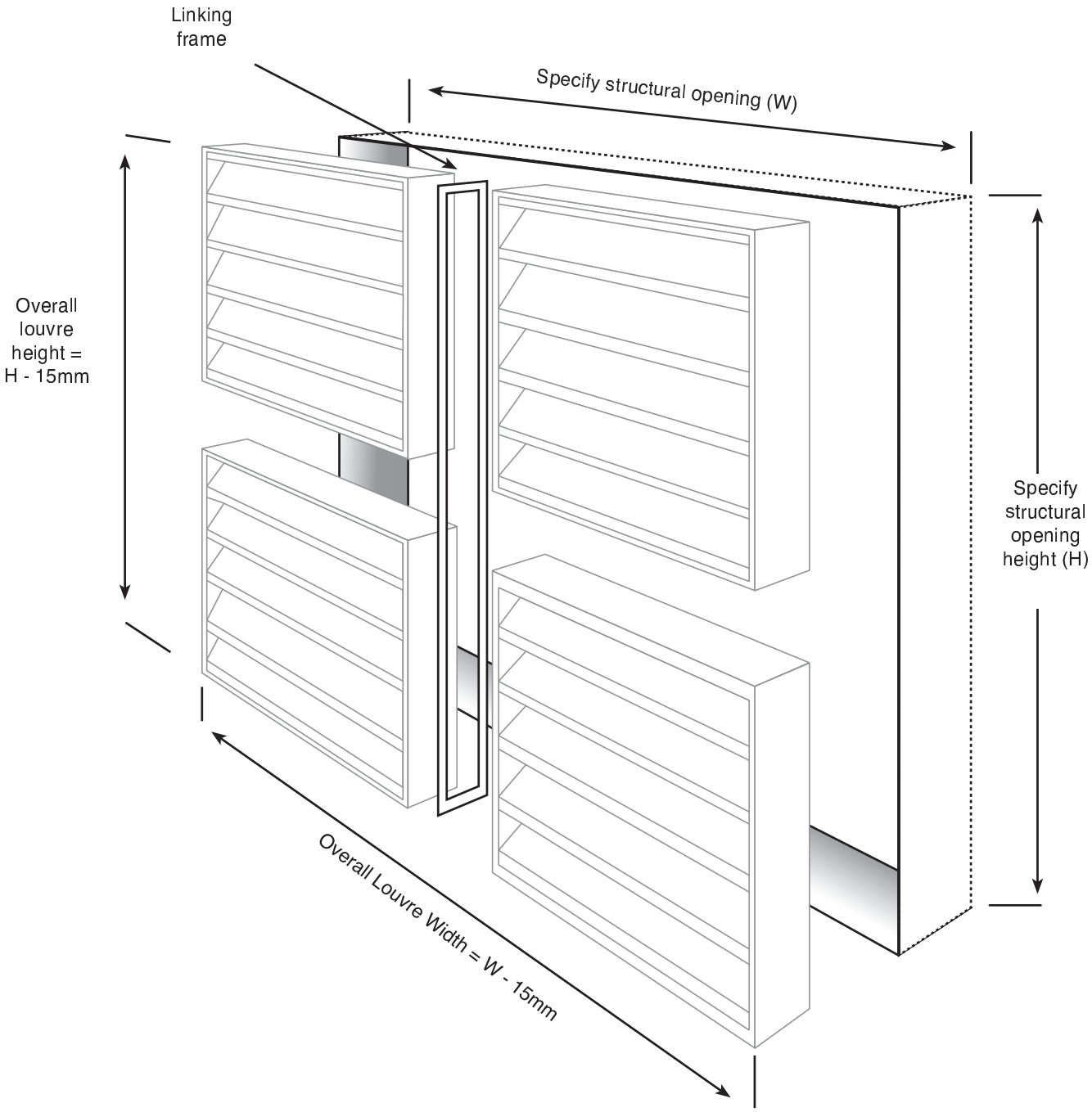
Standard Dimensions



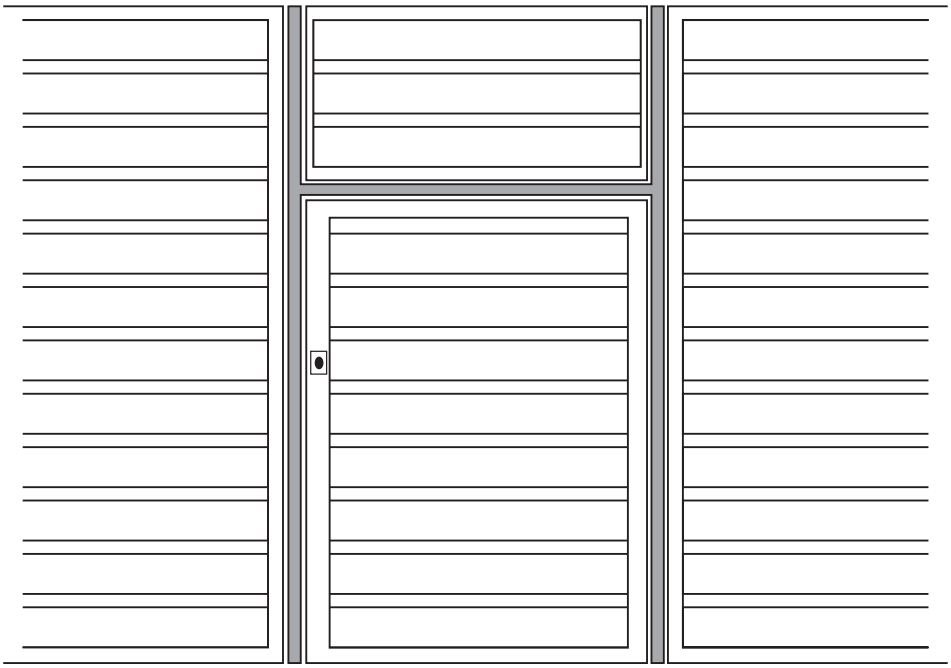


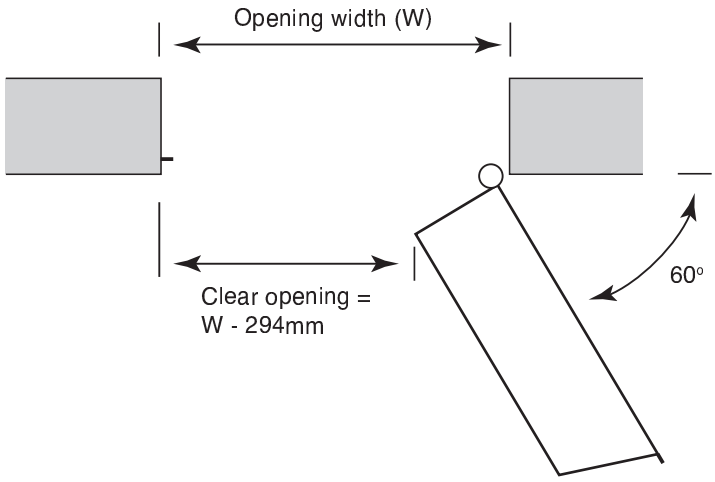


Multi - section for large areas



Door in Acoustic Louvre





How to Order

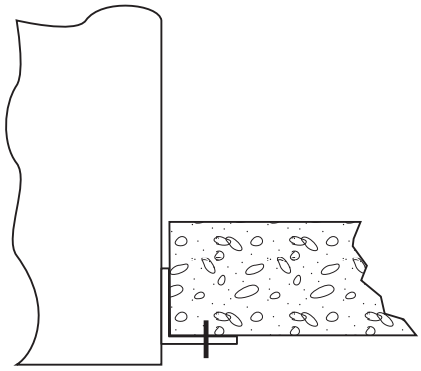
For over size dimensions, contact our engineers.

Actual model and dimensions to be determined from selected data sheet.

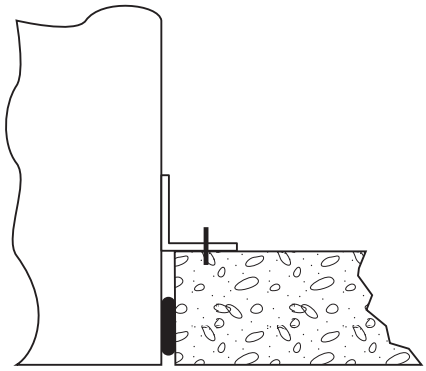
Typical ordering format as shown:

Model	Width	X	Height
AL1-30	1200	X	500

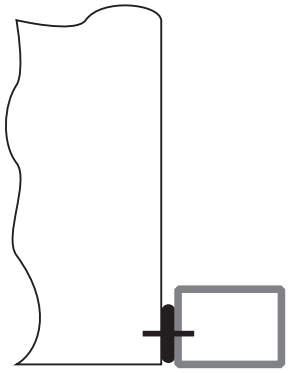
Typical Fixings



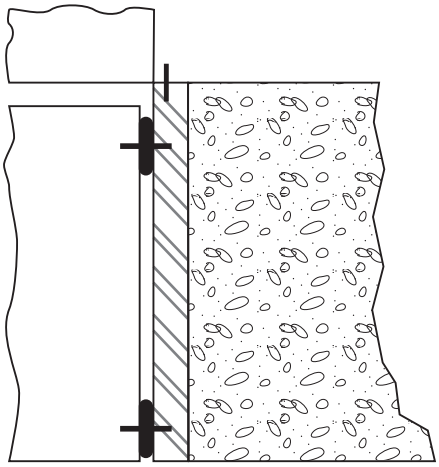
Front mounting frame.



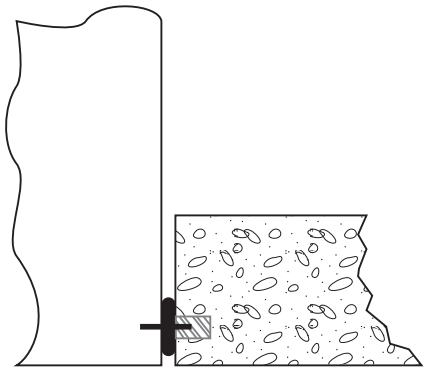
Rear mounting frame.



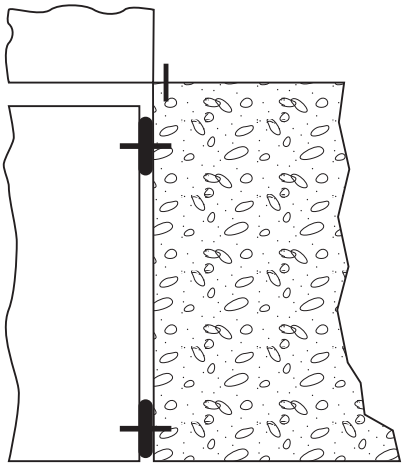
Portal frame connection.



Timber frame connection

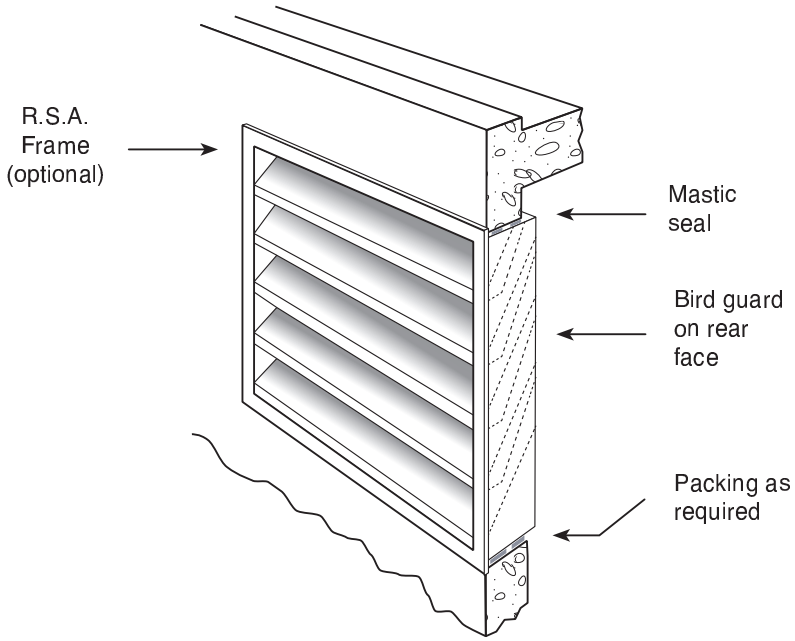


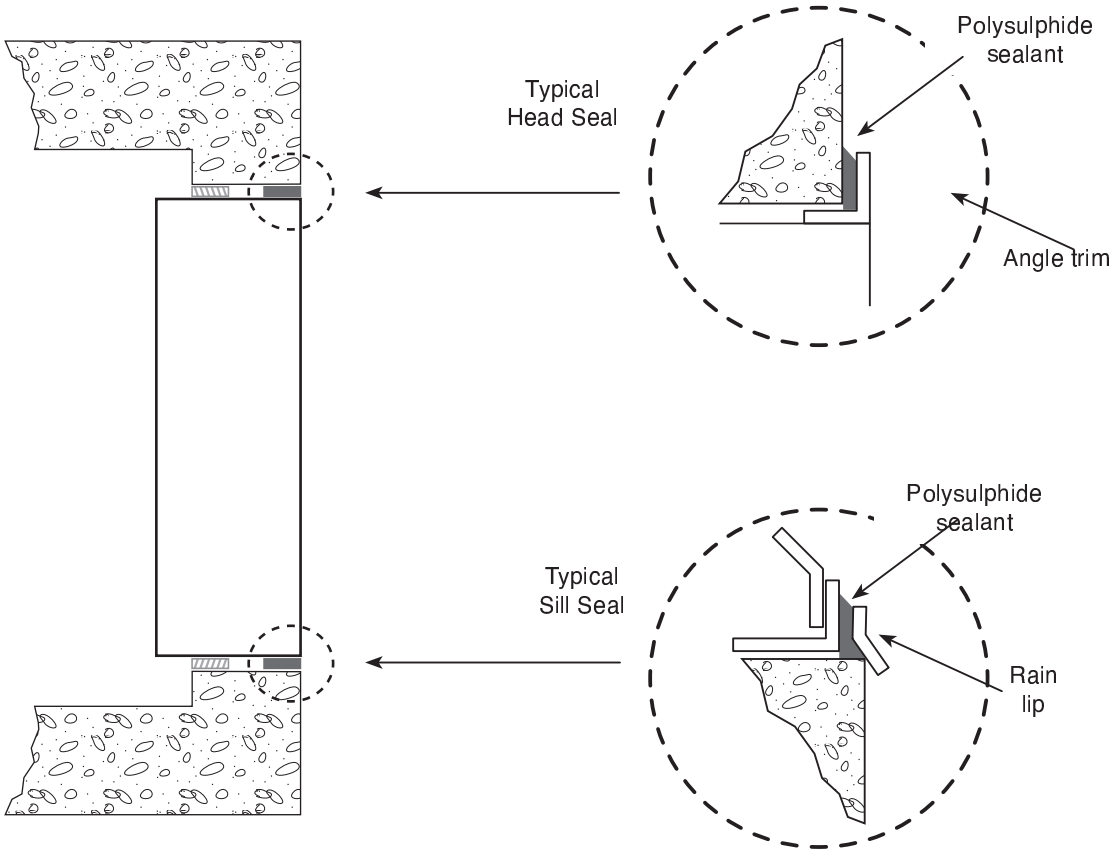
Slim wall connection.



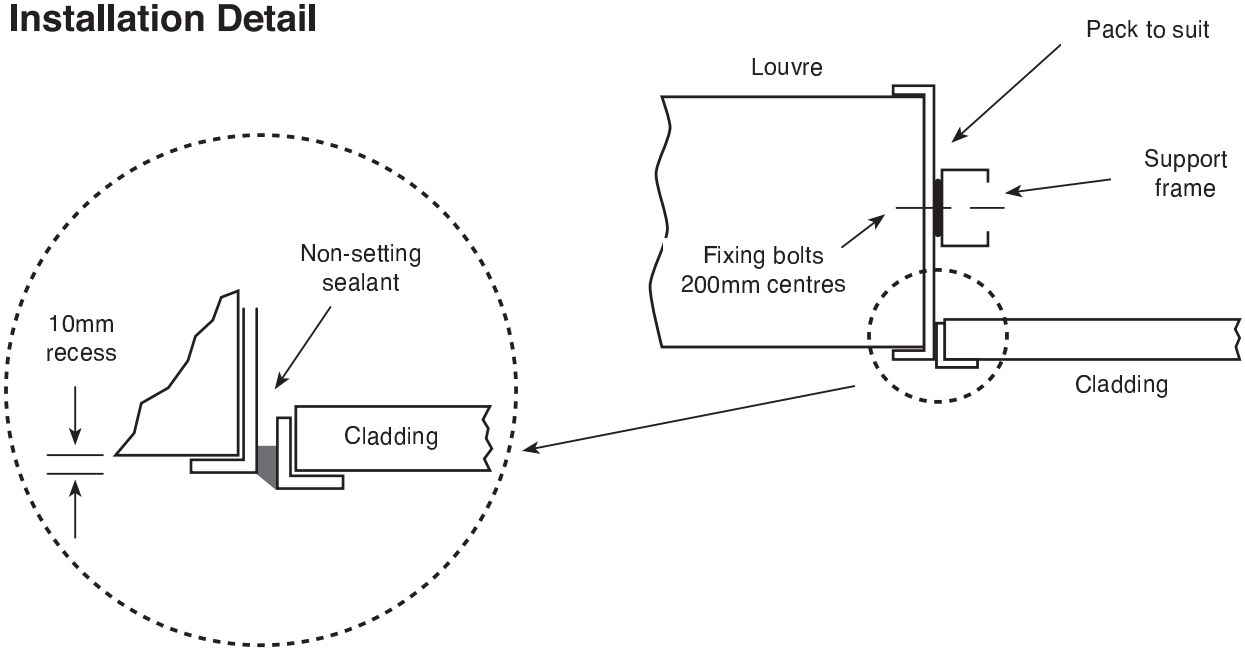
Rear duct connection to louvre.

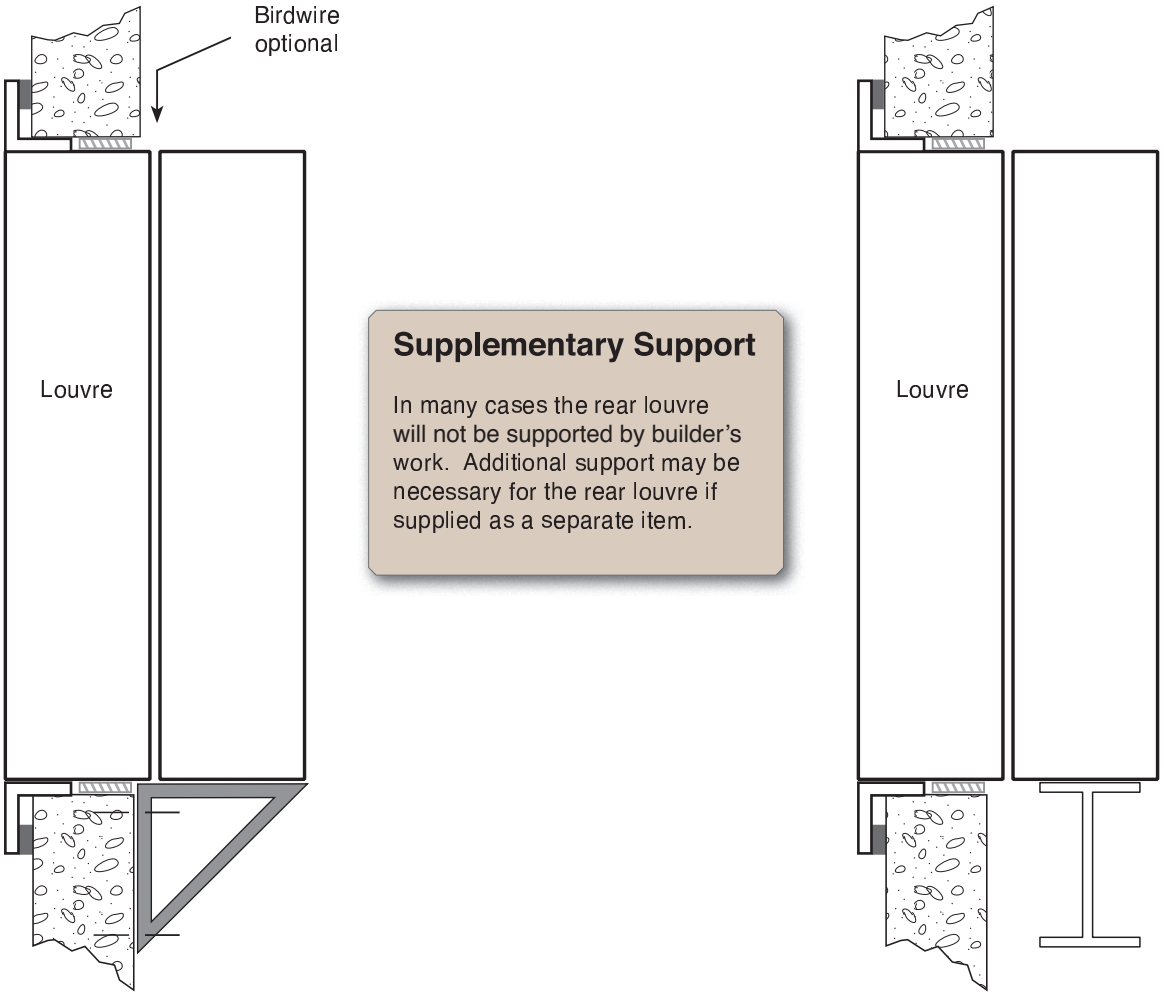
Installation





Installation Detail





Supplementary Support

In many cases the rear louvre will not be supported by builder's work. Additional support may be necessary for the rear louvre if supplied as a separate item.

LOUVRE SILENCERS

Noise Reduction - 300mm Deep

Model	Octave Band Centre Frequency Hz								K Factor
	63	125	250	500	1K	2K	4K	8K	
LS55	11	14	20	23	24	23	20	18	16.03
LS50	12	16	23	27	28	26	25	22	20.77
LS45	9	13	18	21	23	21	19	17	9.20
LS40	10	14	19	25	26	25	24	20	18.97
LS35	8	11	15	19	20	19	17	14	5.56
LS30	9	12	18	23	23	24	21	18	9.19
LS25	7	9	13	15	18	17	14	13	1.66
LS20	7	10	15	19	20	21	18	16	3.34

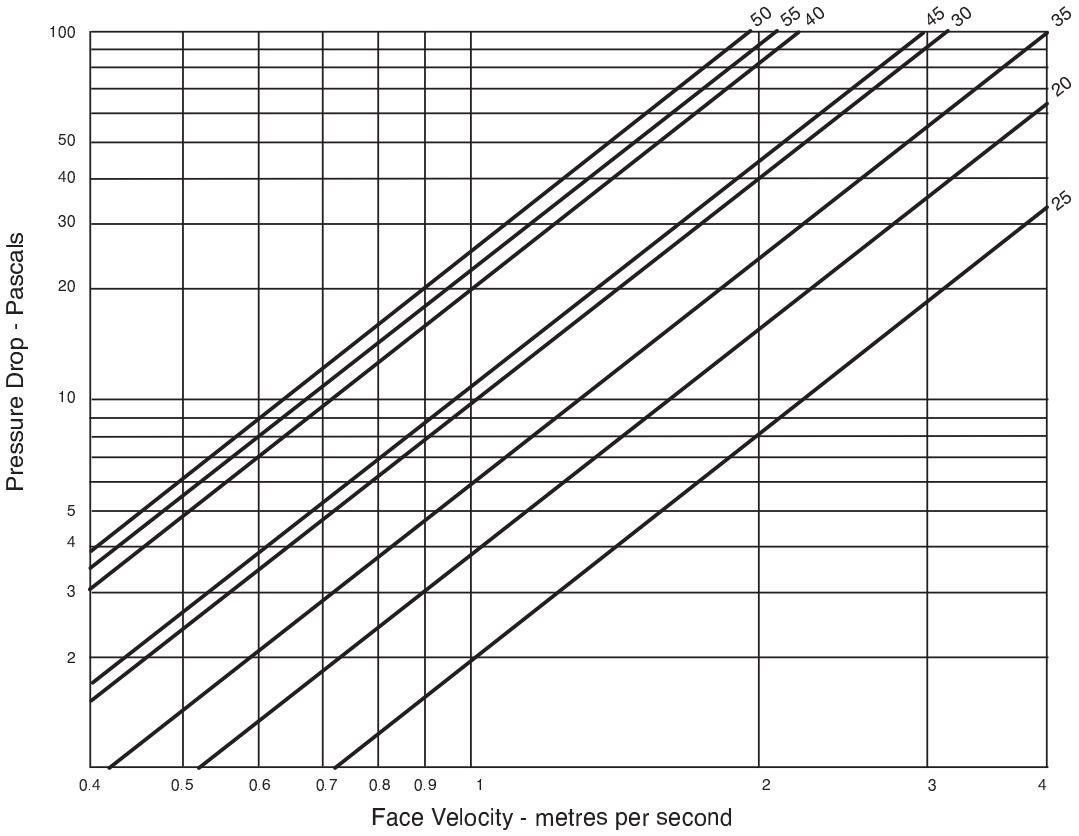
Transmission Loss

This is measured in accordance with AS 1191 & AS 1276 using the "Reverberant Room to Reverberant Room" technique. This is sometimes called the Sound Reduction Index. These figures can be used in a similar manner to Insertion Loss of Duct Silencers.

Noise Reduction

This is the difference in Sound Pressure Levels between a reverberant enclosure and the free field noise external to the louvre. In general the Transmission Loss is 6dB lower than the noise reduction figures.

Aerodynamic Loss - Louvre Silencers



Aerodynamic Performance

This graph shows the approximate Pressure Loss for a 900mm long Louvre Silencer in a free air to plenum application. For more accurate values for 900mm long AND other lengths use this formula:

See also Technical Data page 100 for effects of installation.

$$Pa = K \times (\text{Face Velocity})^2$$

From appropriate table

Calculate from $\dfrac{\text{Vol } m^3/sec}{\text{Face Area } m^2}$

600mm Deep

Model	Octave Band Centre Frequency Hz								K Factor
	63	125	250	500	1K	2K	4K	8K	
LS55	12	17	24	29	31	30	23	20	18.39
LS50	14	19	27	34	36	37	30	24	23.30
LS45	11	16	22	27	29	26	22	19	10.10
LS40	12	17	24	31	34	31	29	23	19.61
LS35	9	12	19	25	27	26	20	17	5.73
LS30	10	14	22	31	31	32	25	21	9.55
LS25	8	10	16	21	24	23	17	15	1.86
LS20	8	11	18	25	28	29	22	19	3.52

900mm Deep

Model	Octave Band Centre Frequency Hz								K Factor
	63	125	250	500	1K	2K	4K	8K	
LS55	14	20	28	35	37	37	26	22	20.76
LS50	16	22	32	40	44	46	34	26	26.71
LS45	12	18	26	33	36	31	25	21	11.00
LS40	13	21	29	37	42	37	34	26	20.25
LS35	10	14	23	31	33	33	23	19	5.90
LS30	11	16	27	39	39	40	30	24	9.92
LS25	8	11	19	27	30	29	20	17	1.96
LS20	9	12	21	31	36	37	26	22	3.78

1200mm Deep

Model	Octave Band Centre Frequency Hz								K Factor
	63	125	250	500	1K	2K	4K	8K	
LS55	16	23	32	41	44	43	29	23	21.55
LS50	18	26	36	47	52	55	39	28	27.45
LS45	13	21	30	38	42	36	28	23	11.90
LS40	15	24	33	44	50	44	39	28	20.90
LS35	11	16	27	37	40	40	27	21	6.07
LS30	12	18	32	47	47	48	35	28	10.28
LS25	9	12	22	32	37	36	23	19	2.13
LS20	10	13	25	37	44	46	31	25	4.06

1500mm Deep

Model	Octave Band Centre Frequency Hz								K Factor
	63	125	250	500	1K	2K	4K	8K	
LS55	18	26	37	47	51	50	32	24	22.92
LS50	20	29	41	54	55	55	44	30	29.08
LS45	15	24	34	44	49	41	31	25	12.50
LS40	16	27	38	50	55	50	44	31	21.55
LS35	12	18	32	43	47	47	30	23	6.24
LS30	13	20	37	55	55	55	40	31	10.64
LS25	10	13	25	38	44	42	26	22	2.30
LS20	11	14	28	44	51	54	36	29	4.36

How to Order

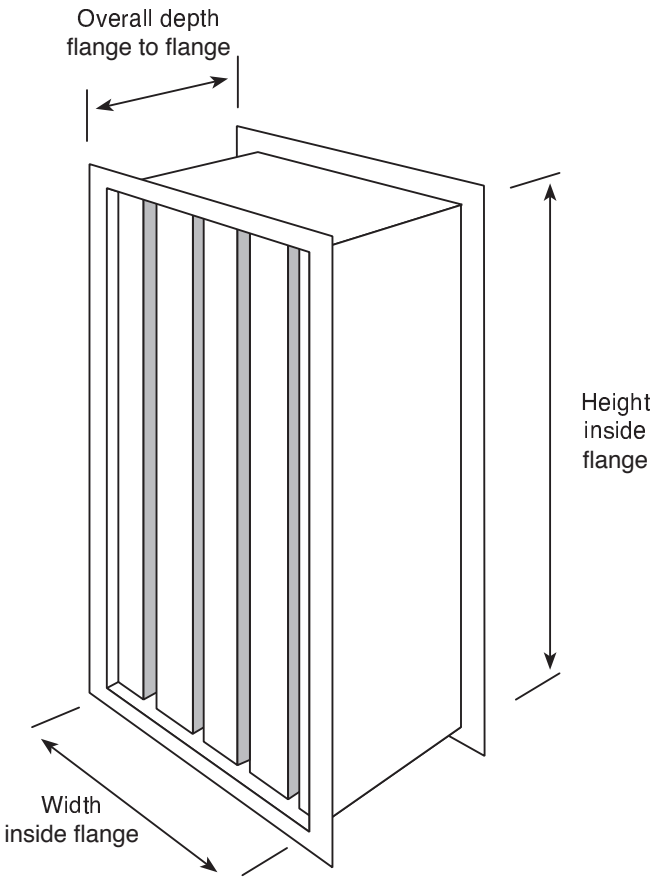
For over size dimensions, contact our engineers.

Actual model and dimensions to be determined from selected data sheet.

Typical ordering format as shown:

Model	Length	X	Width	X	Height
LS50	*900*	*X*	*1000*	*X*	*1500*

Louvre Silencer Dimensions

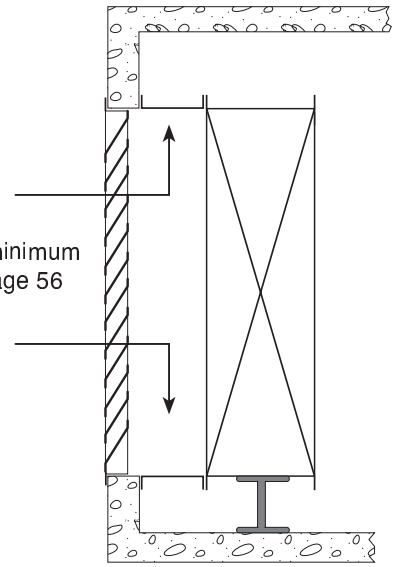


Weights - Louvre Silencers

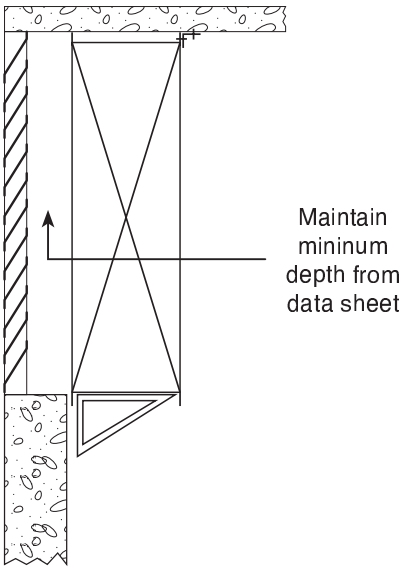
Model	Weight Kg/m² Face Area					Minimum Width	Spacer Minimum Length
	300	600	900	1200	1500		
LS55	41	59	78	96	115	550	600
LS50	44	63	82	102	121	500	650
LS45	41	60	78	97	116	450	500
LS40	44	65	85	105	125	400	450
LS35	41	61	80	99	118	350	400
LS30	45	67	89	110	132	300	350
LS25	42	63	82	103	123	250	300
LS20	48	72	96	120	145	200	250

Louvre Silencer Installation

Installed behind weather louvre in thin wall



Installed behind weather louvre in thick wall



Air transfer room to room