



Sound Attenuator HA33

Modern large buildings are installed with air moving devices, such as fans, air handling units, cooling towers, duct extraction systems, and the likes that produce undesirable noise levels that are transmitted through both the supply and return air systems serving the conditioned areas of the building. To control the passage of noise OLSON Acoustics HA33 sound attenuator is designed to provide significant noise attenuation to achieve the desired acoustical environment in the building.

CONSTRUCTION

OLSON Acoustics' HA33 Sound Attenuator comes with aerodynamic splitters that have bell-mouth entrance and tapered discharge. This aerodynamic design ensures maximum sound attenuation with less airflow resistance and lower generated noise. The splitters are constructed with perforated metal to prevent erosion and enhance low-frequency attenuation. The metal parts, including casing, splitter frame, and its perforated protective lining, inlet, and outlet fairings and flange are constructed, as a standard, using high quality galvanized steel sheet. Sound attenuators may also be constructed of alternative material such as stainless iron SUS 304 or SUS 316 or aluminum. For maximum sound attenuation, selected fiberglass is used for its splitter's acoustic infill and meet Class 'O' requirements to BS Standard BS476 Part 6 and Part 7

APPLICATION

OLSON Acoustics' sound attenuator may be fabricated with different materials suitable for various applications. Some of these applications are listed as follows:

- For outdoor use, the sound attenuator may be constructed of stainless steel SUS304 and infill protected with acoustically transparent polyester film,
- For cooling tower use, the sound attenuator may be constructed of stainless steel SUS304 and recycled glass infill to ensure long-term performance without the need for water protection,
- For marine and offshore use, the sound attenuator may be constructed of stainless steel SUS 316L and infill protected with acoustically transparent polyester film or fiberglass cloth,
- For cleanroom and other critical applications, the sound attenuator may be constructed of galvanized steel and green infills such as acoustic foam and recycled glass for maximum performance and erosion prevention,
- For continuous high-temperature use, the sound attenuator may be constructed of stainless steel SUS304 or SUS 316 and recycled glass for durability and consistent performance,
- For a tunnel ventilation application that requires short time high-temperature exposure, the sound attenuator may be constructed of galvanized steel and fiberglass infill,
- For use in the kitchen exhaust system, the sound attenuator may be constructed of galvanized steel and fiberglass infill protected with a polyester film.

BENEFITS

- Acoustic infill material meets Class 'O' requirements to BS 476 Parts 6 and Part 7.
- Aerodynamically designed splitter with rounded inlet and tapered discharge ensures a significant reduction in pressure loss and generated noise.
- Sturdy construction with angle splitter frame design allows for handling at the site and during installation without distortion or damage to the sound attenuator.
- Reliable design and construction methods prevent premature damage to the sound attenuator.
- Large sound attenuators are constructed in multiple modules for easy assembly on-site with accessory provided.
- Galvanized sheet metal of the highest quality is used on all metallic parts.
- Product tested with alternative material for various applications.
- Perforated steel sheet use as protection of the infill is selected with special perforation and hole size to prevent erosion and enhance low-frequency attenuation.
- Every sound attenuator is cleaned, and its two ends sealed with plastic film at the factory before delivery to prevent dust infiltration when storing at the site.
- Sound attenuators are tested in our in-house sound accredited laboratory for pressure loss and generated noise.
- Custom design for a particular application is available upon request.

Sound Insertion Loss

MODEL	Length (mm)	Face Velocity (m/s)	Press. Loss (Pa)	Flow	Dynamic Insertion Loss In dB						
					125	250	500	1k	2k	4k	8k
HA33-60	600	7.5	40	Return	7	10	16	17	14	10	8
		5	19.5	Return	7	10	15	16	14	11	9
		0	0	Static	7	10	14	15	15	12	10
		5	19.5	Supply	6	9	14	15	15	12	9
		7.5	40	Supply	5	9	14	14	15	12	9
HA33-90	900	7.5	46	Return	9	17	25	25	18	13	11
		5	22.5	Return	8	16	23	25	19	14	12
		0	0	Static	8	12	20	22	19	14	11
		5	22.5	Supply	7	11	19	22	19	15	11
		7.5	46	Supply	7	11	17	21	19	15	11
HA33-120	1200	7.5	52	Return	12	20	30	28	20	14	12
		5	25.5	Return	11	20	29	29	23	16	13
		0	0	Static	11	17	27	30	25	17	13
		5	25.5	Supply	10	15	25	29	25	17	13
		7.5	52	Supply	10	14	23	28	25	18	13
HA33-150	1500	7.5	59	Return	15	23	34	31	22	16	14
		5	28.5	Return	14	23	34	35	26	18	15
		0	0	Static	13	21	33	37	30	18	15
		5	28.5	Supply	13	18	30	36	30	20	15
		7.5	59	Supply	12	17	29	34	30	20	15
HA33-180	1800	7.5	68	Return	17	27	37	40	28	17	15
		5	32	Return	16	26	37	40	30	18	16
		0	0	Static	16	24	36	40	33	19	16
		5	32	Supply	15	21	34	38	32	21	16
		7.5	68	Supply	14	20	32	36	31	21	16
HA33-210	2100	7.5	72	Return	19	32	43	43	30	18	16
		5	34	Return	18	30	42	43	32	19	16
		0	0	Static	18	28	40	43	35	21	17
		5	34	Supply	17	25	37	41	35	23	17
		7.5	72	Supply	16	24	35	38	32	24	17
HA33-240	2400	7.5	76	Return	22	35	44	45	32	19	17
		5	36	Return	21	33	43	45	34	20	17
		0	0	Static	21	31	43	46	38	22	18
		5	36	Supply	19	28	41	43	37	24	18
		7.5	76	Supply	18	27	38	40	33	25	18
HA33-270	2700	7.5	88	Return	24	37	47	48	36	21	19
		5	39	Return	23	35	46	48	39	22	19
		0	0	Static	23	33	45	49	41	24	20
		5	39	Supply	21	30	43	48	42	26	20
		7.5	88	Supply	20	29	41	47	43	25	19
HA33-300	3000	7.5	95	Return	26	38	50	50	38	22	20
		5	42	Return	25	37	49	50	41	23	20
		0	0	Static	25	35	48	51	43	25	20
		5	42	Supply	23	32	46	50	44	27	21
		7.5	95	Supply	22	31	44	49	45	26	21

1. Performance data are based on tests conducted on 600 X 600 mm sound attenuators
2. Due to sound source limitation used during testing, the dynamic insertion loss (DIL) of a sound attenuator longer than 2400 mm cannot be measured under laboratory conditions. The 2700 and 3000 mm length sound attenuators are tested without airflow for static insertion loss (SIL), its DIL as shown in the performance table is derived by adding to its SIL the corresponding correction factors shown in the table below.

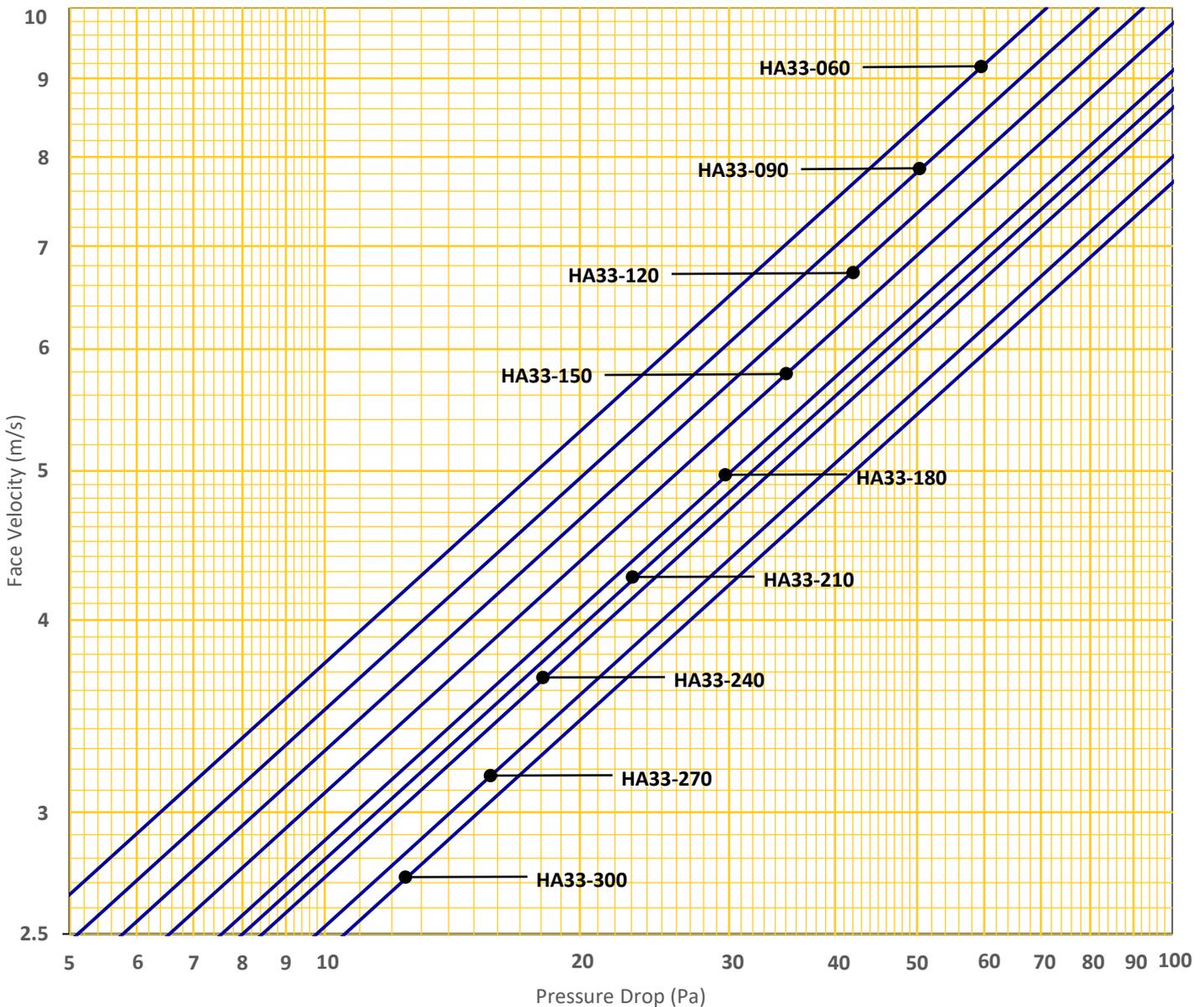
Correction factors for DIL of 2700 and 3000 mm length silencers

Face velocity (m/s)	Flow	Octave Band Centre Frequency (Hz)						
		125	250	500	1k	2k	4k	8k
5	Return	1	3	2	-1	-5	-3	-1
7.5	Return	0	2	1	-1	-2	-2	-1
5	Supply	-2	-3	-2	-1	1	2	0
7.5	Supply	-3	-4	-4	-2	2	1	0

Generated Sound Power Level - dB re10⁻¹² Watts

Flow	Face Velocity (m/s)	Center Octave Band Frequency (Hz)						
		125	250	500	1k	2k	4k	8k
Supply	5	47	43	43	45	45	44	37
Supply	7.5	57	51	49	50	55	55	45
Supply	10	59	55	54	54	59	58	53
Return	5	45	41	42	45	46	46	39
Return	7.5	55	49	48	49	56	57	47
Return	10	57	53	53	53	60	60	55

Static Pressure Drop (Pascal)



Weight of Sound Attenuator

Width (mm)	Height (mm)	Length (mm)	Unit Wt (kg)
600	600	600	30
		900	38
		1200	47
1200	600	600	57
		900	74
		1200	92
1200	1200	600	91
		1200	146
		1800	200
		2400	260
1800	600	600	90
		1200	143
		1800	197

Width (mm)	Height (mm)	Length (mm)	Unit Wt (kg)
1800	1200	600	140
		900	221
		1200	302
		2400	391
1800	1800	600	190
		1200	299
		1800	408
		2400	525
2400	600	600	115
		1200	184
		1800	253
		2400	332

Width (mm)	Height (mm)	Length (mm)	Unit Wt (kg)
2400	1200	600	178
		1200	282
		1800	385
		2400	499
2400	1800	600	242
		1200	380
		1800	517
		2400	665
2400	2400	600	324
		1200	497
		1800	669
		2400	852

Note: Weights are estimated based on galvanized steel material and fiberglass infill and apply to stainless steel material of construction.



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