

Model EBS-D Standard Frequency Elbow Silencer

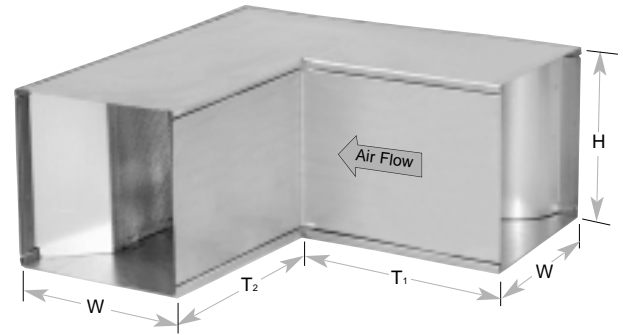


Engineered for Silence

Certified Performance Data

Testing Information:

All acoustical performance and aerodynamic data is derived from independent laboratory tests in accordance with ASTM E477-99, the standard method for testing duct silencers. Published information originated from a 24" x 24" (610 x 610 mm) production unit, tested in forward flow (+, air/noise in same direction) and reverse flow (-, air/noise in opposite directions). If silencers are installed immediately before or after elbows, transitions, at the intake or discharge of the system or without a duct, allowance for such conditions must be included and compensated for when calculating the operating pressure through the silencer. Failure to make allowances for these conditions can add several velocity heads to the pressure loss of the system.



Baffles are parallel to "H"



NVLAP Lab Code 200453-0

Length Inches (mm)	Pressure Drop in. wg (Pa)	Face Velocity fpm (m/s)	Insertion Loss (dB)										Generated Noise* L_{W} (dB; 10^{12} Watts)							
			Octave Band Center Frequency (Hz)										Octave Band Center Frequency (Hz)							
			0 31.5	1 63	2 125	3 250	4 500	5 1K	6 2K	7 4K	8 8K	0 31.5	1 63	2 125	3 250	4 500	5 1K	6 2K	7 4K	8 8K
72 (1,829)	0.42 (104)	-1500 (-7.6)	3	5	12	25	35	46	40	30	23	93	69	55	51	52	52	53	45	35
	0.11 (27)	-750 (-3.8)	5	6	11	24	35	47	44	31	24	77	59	46	37	36	37	27	21	27
	0.00 (0)	0.00 (0)	4	6	11	23	33	46	44	34	27	—	—	—	—	—	—	—	—	—
	0.11 (27)	+750 (+3.8)	5	5	10	22	32	46	44	35	28	75	59	46	36	37	38	31	22	28
	0.42 (104)	+1500 (+7.6)	2	5	10	21	31	45	40	36	29	89	80	60	52	50	49	53	48	39

Centerline Length = $W + T_1 + T_2$; Minimum throat length = 8" (Elbows Only)

Negative values for insertion loss can sometimes result in the low frequency bands due to problems with the current ASTM E477 test method. The ASTM E477 subcommittee is currently working on a revision to the test method to resolve this matter. In the mean time Dynasonics recommends that a value of zero (0 dB) be used for any negative DIL values.

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Standard Construction:

- Maximum Differential Pressure: 8 in. wg (1987 Pa)
- Outer casing: 22 gauge (0.85 mm) galvanized steel
- Perforated material: 26 gauge (0.55 mm) galvanized steel
- Fill material: Inorganic and of sufficient density, packed under 5% compression. Meets NFPA 90A, UL-723 & ASTM E136, C24 & E84

Use the following formula to calculate Self Generated Noise Adjustment Factors:

$$\text{Formula: } 10 \times \log_{10} \left(\frac{\text{trapFt}^2}{4} \right)$$

Use the following formula to calculate pressure drop for intermediate velocities (in. wg):

$$\text{Formula: } \left(\frac{\text{Job Velocity}}{\text{Catalog Velocity}} \right)^2 \times \text{Catalog Static Pressure} = \text{Pressure Drop}$$

$$\text{Example: } \left(\frac{856}{750} \right)^2 \times 0.11 = 0.14 \text{ in.w.g.}$$

* Adjustment factor is added to each octave band in the Self Generated Noise table, at the given velocity.

Self Generated Noise Adjustment Factors*									
Face Area Square Ft.	.5	1	2	4	8	16	32	64	128
L _w : Adj. Factor (dB)	-9	-6	-3	0	+3	+6	+9	+12	+15

Options:

- Galvanized Steel Construction:
 - 16 gauge (1.61 mm) outer casing
 - 18 gauge (1.31 mm) outer casing
 - 22 gauge (0.85 mm) perforated
- Stainless Steel Construction:
 - 304
 - 316
- Aluminum Construction:
 - 3003 H14
- Connections:
 - S & Drive †
- Angle Flange Connection:
 - 1" x 1" x 1/8" (25.4 x 25.4 x 3.2 mm)
 - 2" x 2" x 1/4" (50.8 x 50.8 x 6.4 mm)
 - 3" x 3" x 1/4" (76.2 x 76.2 x 6.4 mm)
 - Pre-drilled holes †
 - Continuously welded
- Fill Protection:
 - Mylar
 - Tedlar
 - Fiberglass Cloth

† Please provide bolt hole pattern, size and configuration.
‡ Maximum size is 48 x 48 (1219 x 1219).

Aerodynamic Performance Data

Length inches (mm)	Face Velocity fpm (m/s) & Pressure Drop in. wg (Pa)										
		250 (1.3)	500 (2.5)	750 (3.8)	1000 (5.1)	1250 (6.4)	1500 (7.6)	1750 (8.9)	2000 (10.2)	2250 (11.4)	2500 (12.7)
Pressure Drop In. w.g. (Pa)	72 (1,829)	0.01 (3)	0.05 (12)	0.11 (27)	0.19 (47)	0.26 (65)	0.42 (104)	0.57 (142)	0.71 (176)	0.90 (223)	1.11 (276)

Standard Module Weights and Dimensions

Length in inches (mm)	W, inches (mm)	H, inches (mm)	Weight (kg)															
			12 (305)	12 (305)	12 (305)	12 (305)	24 (610)	24 (610)	24 (610)	24 (610)	36 (914)	36 (914)	36 (914)	36 (914)	48 (1219)	48 (1219)	48 (1219)	48 (1219)
36 (914)	weight (kg)		42 (19)	52 (24)	71 (32)	90 (41)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
48 (1,219)	weight (kg)		56 (25)	69 (31)	94 (43)	119 (54)	89 (40)	108 (49)	146 (66)	184 (83)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
60 (1,524)	weight (kg)		70 (32)	86 (39)	117 (53)	148 (67)	112 (51)	135 (61)	182 (83)	229 (104)	132 (60)	158 (72)	209 (95)	261 (118)	N/A	N/A	N/A	N/A
72 (1,829)	weight (kg)		84 (38)	102 (46)	140 (63)	177 (80)	134 (61)	162 (73)	219 (99)	275 (125)	159 (72)	190 (86)	251 (114)	313 (142)	208 (94)	248 (112)	327 (148)	405 (184)
84 (2,134)	weight (kg)		98 (44)	119 (54)	163 (74)	207 (94)	157 (71)	189 (86)	255 (116)	320 (145)	187 (85)	223 (101)	295 (134)	366 (166)	244 (111)	290 (132)	382 (173)	474 (215)
96 (2,438)	weight (kg)		111 (50)	136 (62)	186 (84)	236 (107)	180 (82)	218 (99)	293 (133)	367 (166)	214 (97)	255 (116)	337 (153)	418 (190)	279 (127)	332 (151)	437 (198)	543 (246)
108 (2,743)	weight (kg)		126 (57)	154 (70)	210 (95)	266 (121)	203 (92)	245 (111)	329 (149)	413 (187)	241 (109)	287 (130)	379 (172)	470 (213)	315 (143)	374 (170)	492 (223)	611 (277)
120 (3,048)	weight (kg)		140 (63)	171 (78)	233 (106)	295 (134)	226 (102)	272 (123)	365 (166)	459 (208)	268 (122)	319 (145)	421 (191)	523 (237)	350 (159)	416 (189)	548 (249)	680 (308)

- Use next larger size when estimating weight for intermediate sizes.
- Maximum module width varies, maximum module height — 48" (1219 mm).
- Factory tolerances are ±1/16" (1.6 mm).
- When bank sizes are ordered, modules are undersized 1/8" (3.2 mm) where breakdown occurs (unless otherwise noted).
- Standard connection of duct silencers is raw (unless otherwise noted).

Ordering Information:

To order, state length-model, width and height.

EBS-D-W x H x T ₁ x T ₂
/
model-width x height x throat 1 x throat 2

Example:

EBS-D-24x24x24x24