

# Clevaflex HVA

High Velocity Attenuator

## Construction:

**Perforated Metal Core** – The Clevaflex HVA core is constructed from one ply of perforated and corrugated aluminum with interlocked seams, folded flat and knurled for flexibility and strength.

**Fiberglass Insulation Wrap** – The core is then completely wrapped with a blanket of fiberglass insulation.

**2-Ply Metal Sleeve** – The exterior sleeve is constructed with 2-plys of aluminum permanently fused together and corrugated creating a continuous inner and outer surface that is air-tight, flexible and strong. Inlet and outlet collars are then attached to the ends.

## Sound Attenuation Applications:

- Final “silencer” in the HVAC system, after the duct work and before the terminal box.
- For sound attenuation after the terminal box where noise to the ceiling space is undesirable.
- With pressure blowers and other high velocity, small discharge area fans.
- As a duct silencer, where other than straight conditions exist.
- Eliminates the need for wrapping flexible duct with acoustical lagging materials.

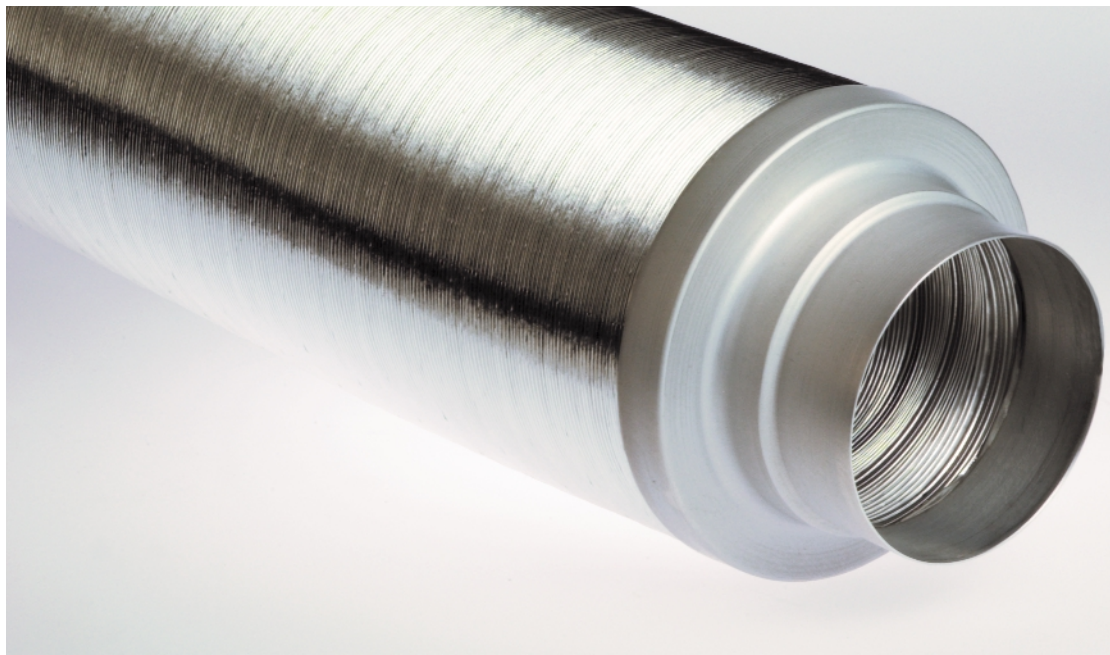
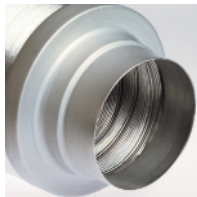
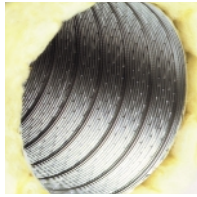
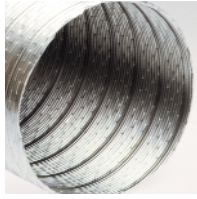
## Radiated Noise Reduction Applications:

- Terminal box throttling damper noise will not go through the Attenuator wall into occupied space.
- Eliminates box-to-box crosstalk noise.
- To enable calculating the fan noise reduction “through or past” the terminal box to downstream components (low pressure duct or diffuser sound-splits, rather than stopping at flex).
- To substitute for double-wall duct in spaces where difficult offsets might occur.

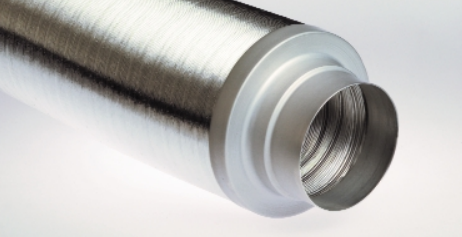
<b>Length:</b>	5' standard (tip-to-tip)
<b>Velocity:</b>	3000 FPM
<b>Operating Temp:</b>	0° – 350°F
<b>Working Pressure:</b>	20" WC positive and negative
<b>Burst Pressure:</b>	40" WC
<b>Metal Core:</b>	.0055" thick, AL 3003 – H111
<b>Insulation:</b>	1-1/2" thick, .5 lb density
<b>R-Value:</b>	4.5
<b>Metal Sleeve:</b>	Inner Ply .0025" thick, AL 1100 – H19 Outer Ply .003" thick, AL 3003 – 0

ID Size	4"	5"	6"	7"	8"	10"	12"	14"
<b>OD Size</b>	6"	7"	8"	9"	10"	12"	14"	16"
<b>Total Weight – lbs</b>	3.2	3.7	4.3	5.5	6.2	8.0	9.4	10.8

Note: ID Sizes are nominal and weights are approximate.



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## Radiated Noise Reduction in dB for 8" ID Clevaflex - 5' Length

Octave Band Number	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Center Frequency - Hz	125	250	500	1000	2000	4000	8000
Noise Reduction @ Zero FPM	19	24	38	36	36	29	24
Noise Reduction @ 2500 FPM	17	23	36	35	35	29	24

Note: Radiated noise does not vary substantially with diameter. All values shown are available for 4" - 14" ID.

## Sound Attenuation With and Without Air Flow

### Straight Attenuator – Insertion Loss (IL) in dB per 5' Length

Octave Band Number	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Center Frequency - Hz	125	250	500	1000	2000	4000	8000
<b>IL @ Zero FPM</b>							
4" ID Attenuator	12	15	30	40	42	28	18
6" ID Attenuator	9	10	21	30	35	18	12
8" ID Attenuator	6	7	19	26	25	13	11
14" ID Attenuator	4	6	18	22	20	10	9
<b>IL @ 2500 FPM</b>							
4" ID Attenuator	11	14	29	38	42	27	18
6" ID Attenuator	8	9	20	28	32	17	12
8" ID Attenuator	4	6	17	25	24	13	11
14" ID Attenuator	3	5	15	21	19	10	9

### Attenuator with 90° Bends – Insertion Loss (IL) in dB per 5' Length

<b>IL @ Zero FPM</b>							
4" ID Attenuator	5	13	29	41	35	38	6
6" ID Attenuator	2	4	17	32	34	15	7
8" ID Attenuator	5	4	16	28	31	11	6
14" ID Attenuator	5	4	15	26	29	9	7
<b>IL @ 2500 FPM</b>							
4" ID Attenuator	4	13	29	36	33	19	6
6" ID Attenuator	2	4	17	33	33	14	7
8" ID Attenuator	5	3	16	28	30	12	6
14" ID Attenuator	5	4	15	26	29	10	7

**Note:** Insertion Loss (IL) values should not be directly compared with similar data for single flexible duct. Single wall data includes the effect of noise transmitted through the wall into the surrounding space.

### Test Procedure:

A 5' long smooth, straight, empty metal duct section is installed in a duct system. Test signals are generated at one end of the duct and then measured in a reverberation room at the other end. The empty metal duct is removed and replaced with a Clevaflex High Velocity Attenuator and the test is repeated. These procedures are followed for different air flows as well as straight and 90° bends.

## Suggested Specification(s):

Contractor shall furnish and install Clevaflex HVA (High Velocity Attenuator) as manufactured by Clevaflex in sizes and locations where indicated on drawings. Attenuator shall be all-metal, semi-rigid construction, consisting of an inner perforated core of 1-ply aluminum strip that is corrugated with seams interlocked, folded flat, and knurled for strength and flexibility. The inner core shall be wrapped with a blanket of fiberglass insulation and covered with an all metal exterior sleeve consisting of 2-plys of aluminum that are permanently fused together and corrugated creating a continuous inner and outer surface that is air-tight, flexible and strong. Spun aluminum inlet and outlet collars shall be factory installed and sealed to the core and outer sleeve. This unit shall be tested by a recognized, independent acoustical laboratory in accordance with Air Diffusion Council standards for acoustics FD72-R<sub>1</sub>.

**Note 1:** Since installation of the materials and conditions of use are important factors in obtaining satisfactory results and are beyond our control, Clevaflex can make no warranties, expressed or implied, including warranties of merchantability and fitness for a particular purpose, with respect to the material or its use or performance. All consequential damages whatsoever are expressly excluded.

**Note 2:** The statements regarding the characteristics, properties and performance of the materials described herein are based on data believed reliable, but no guarantee of their accuracy is made and such statements should not be construed as warranties or as the basis therefore.

# Clevaflex



**Clevaflex**

4081 West 150th Street  
Cleveland, Ohio 44135  
216.941.8742 Fax  
**216.941.6505**  
www.clevaflex.com  
info@clevaflex.com