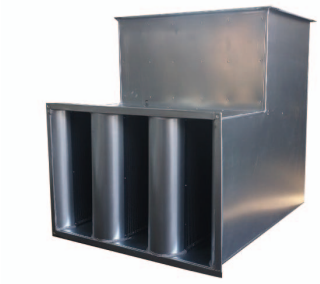
ANOS10 Rectangular Type Sound Attenuator

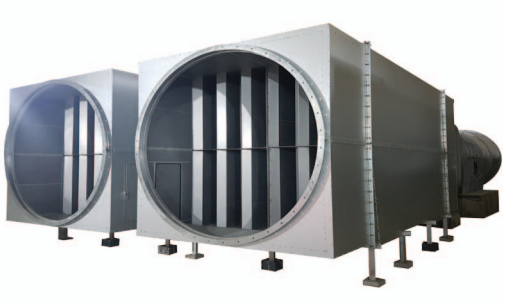
■ Features

ANOS10 is useful in reducing the noise transmission through the HVAC system and by adjusting air way gap between the splitters inside; the noise problem can be resolved. In general, it offers excellent sound attenuation in 500~8000Hz.

Splitter Type



Elbow Type



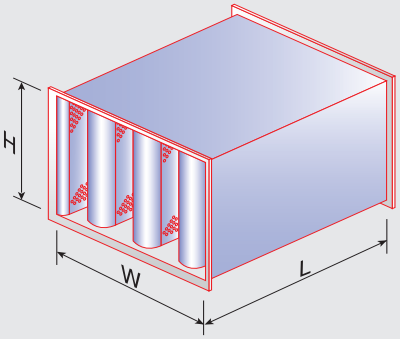
Tunnel Exhaust silencer

■ Model Denotation method

R □□ – □□ – □ X □ X □

① ② ③ ④ ⑤ ⑥ ⑦

① Splitter Shape
② Absorption Material Protection Method
③ Sound Attenuator Shape
④ Splitter Thickness / Air Way Area Ratio Type(S, L, M Type)
⑤ Sound Attenuator Width(mm)
⑥ Sound Attenuator Hight(mm)
⑦ Sound Attenuator Length(mm)



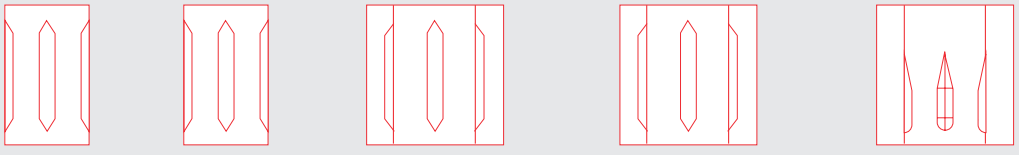
■ Splitter Shape

T: U: V: W:

■ Absorption Material Protection Method

G : GLASS WOOL + GLASS CLOTH
P : GLASS WOOL + GLASS CLOTH + PERFORATED PLATE
F : GLASS WOOL + GLASS CLOTH + PE FILM + PERFORATED PLATE

■ Sound Attenuator Shape



1 2 3 4 5

■ Splitter Thickness / Air Way Area

S Type : Large pressure loss and self noise and large amount of noise attenuation thru all of the frequency band.
L Type : Small pressure loss and self noise and large amount of noise attenuation for middle/high frequency band.
M Type : Middum amount of pressure loss and self noise and large amount of noise attenuation for 250Hz/500Hz.

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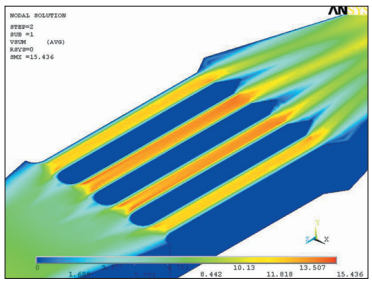
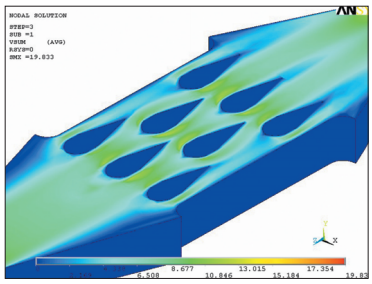
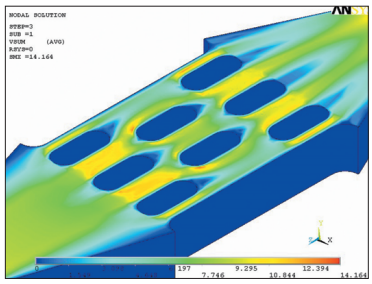
■ Analysis Of Velocity Distribution Per Splitter Type







■ Sound Attenuator Calculation Sheet

Model	AHU-01(S)	Air Flow	20900 CMH(m^3/h)	DUCT SIZE	1400 X 600	Static Efficiency	90%
Project	Project Name			Service	Office	Quantity	1 SET
Location	–	Static Pressure	107 mmAq	Diffuser Type	SQUARE	Duct Airflow Velocity	6.9 m/sec

▶ INFORMATION OF EQUIPMENT & PROJECT

							OCTAVE BAND CENTER FREQUENCY(Hz)						
							63	125	250	500	1000	2000	4000
1. Fan Total Sound Power Level (PWL)	CODE	2	AIR FOIL										
1) Specific Sound Power Level (Kw)							45.0	45.0	43.0	39.0	34.0	28.0	24.0
2) Sound Level by Air Flow & Static Pressure (Mw)							53.4	53.4	53.4	53.4	53.4	53.4	53.4
3) Correction Factor by Efficiency (C)							0.0	0.0	0.0	0.0	0.0	0.0	0.0
4) Blade Frequency Increments (BFI)							0.0	0.0	3.0	0.0	0.0	0.0	0.0
						(Total)	98.4	98.4	99.4	92.4	87.4	81.4	77.4
2. Attenuation of System							Total Sound Power Level : 94.7dB(A)						
1) Unlined Rectangular Sheet Metal Ducts													
a.Rectangular Duct			Width	Hight	P/A	Length							
Duct - 1			1.40	0.60	4.76	10	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Duct - 2			0.0	0.00	0.00	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
b.Circular Duct													
2) Insertion Loss of Elbow													
a.Square Elbow			Q'TY	0	Width	1.40	0.0	0.0	0.0	0.0	0.0	0.0	0.0
b.Round Elbow			Q'TY	0	Width	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0
c.Lined Elbow			Q'TY	0	Width	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3) Chanber Attenuation		0	Q'TY	0	Width	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(Non-Sound-Absorbing)	Q'TY	0	0	0	NRC	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4) Chanber Attenuation			Inlet	0.0	Outlet	0.0							
(Sound-Absorbing)	Q'TY				Outlet	0.65	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5) Duct Branch Sound Power Division			Inlet	0.8	NRC	0.8							
6) Duct End Reflection Loss			Air Wolume		780	m^2/h	14.3	14.3	14.3	14.3	14.3	14.3	14.3
7) The Other Attenuation			Q'TY		N.D	0.25	16.0	11.0	6.0	2.0	1.0	0.0	0.0
(Total) : 1)+2)+3)+4)+5)+6)+7)							33.3	28.3	23.3	19.3	18.3	17.3	17.3
3. Sound Power Level in Room (PWL)			(Sum1 - Sum2)			Code	65.1	70.1	76.1	73.0	69.1	64.1	60.1
4. Noise Criteria in Room(SPL)						6	64.0	56.0	50.0	45.0	41.0	39.0	38.0
5. Correction by Diffuser Sound Pressure (-10log ne+10log ni) ne=0.23 ni=0.7							4.8	4.8	4.8	4.8	4.8	4.8	4.8
6. Attenuation to Room Absorption (Kr)			Width	5	α	0.01							
			Length	5	α	0.01							
			Hight	4.0	α (Ave)	0.01	-4.9	-4.9	-4.9	-4.9	-4.9	-4.9	-4.9
			Area(m^2)	130	Room Constan	1.31							
7. Allowable Sound Power Level at Outlet (PWL) : (4+5+6)							63.9	55.9	49.9	44.9	40.9	38.9	37.9
8. Generated Noise at Outlet (PWL)			*Sound Power Level (Before Atten.) : 74.4 dB(A)										
9. Allowable Sound Power Level in Room (PWL)							63.9	55.9	49.9	44.9	40.9	38.9	37.9
10. Additional Attenuation Required			(3-9)				1.2	14.2	26.2	28.2	28.2	25.2	22.2
11. Sound Attenuator			Model	Width	Hight	Length	*Air Velocity (Pass through Atten.) : 8.1 m/s						
(Insertion Loss)		5		1800	800	1500	7	8	14	23	31	33	17
Pressure Drop	3 mmAq	7		1800	800	1800	7	11	16	26	37	37	20
		9		1800	800	2100	8	11	19	30	43	41	24

▶ SELF GENERATED NOISE DATA

▶ NATURAL ATTENUATION DATA (Noise attenuation by Duct, Elbow, Chamber and Distribution etc.)

▶ Selection of standard noise level on room

▶ Radiation Coefficient (Considering the area and absorption ratio of room)

▶ SELLECTION OF SOUND ATTENUATOR SIZE (Considering required attenuation, velocity and static pressure drop etc.)

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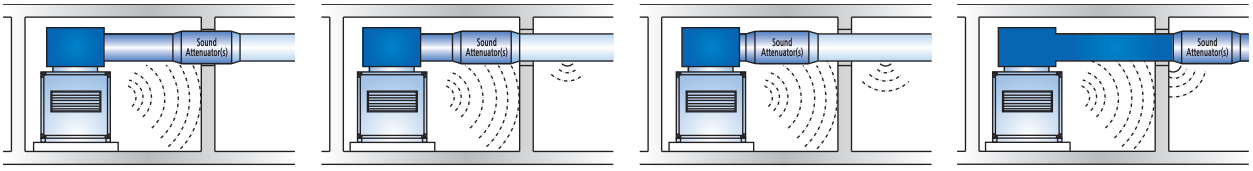
■ Sound Trap Sound Attenuator Placement On AHU Room



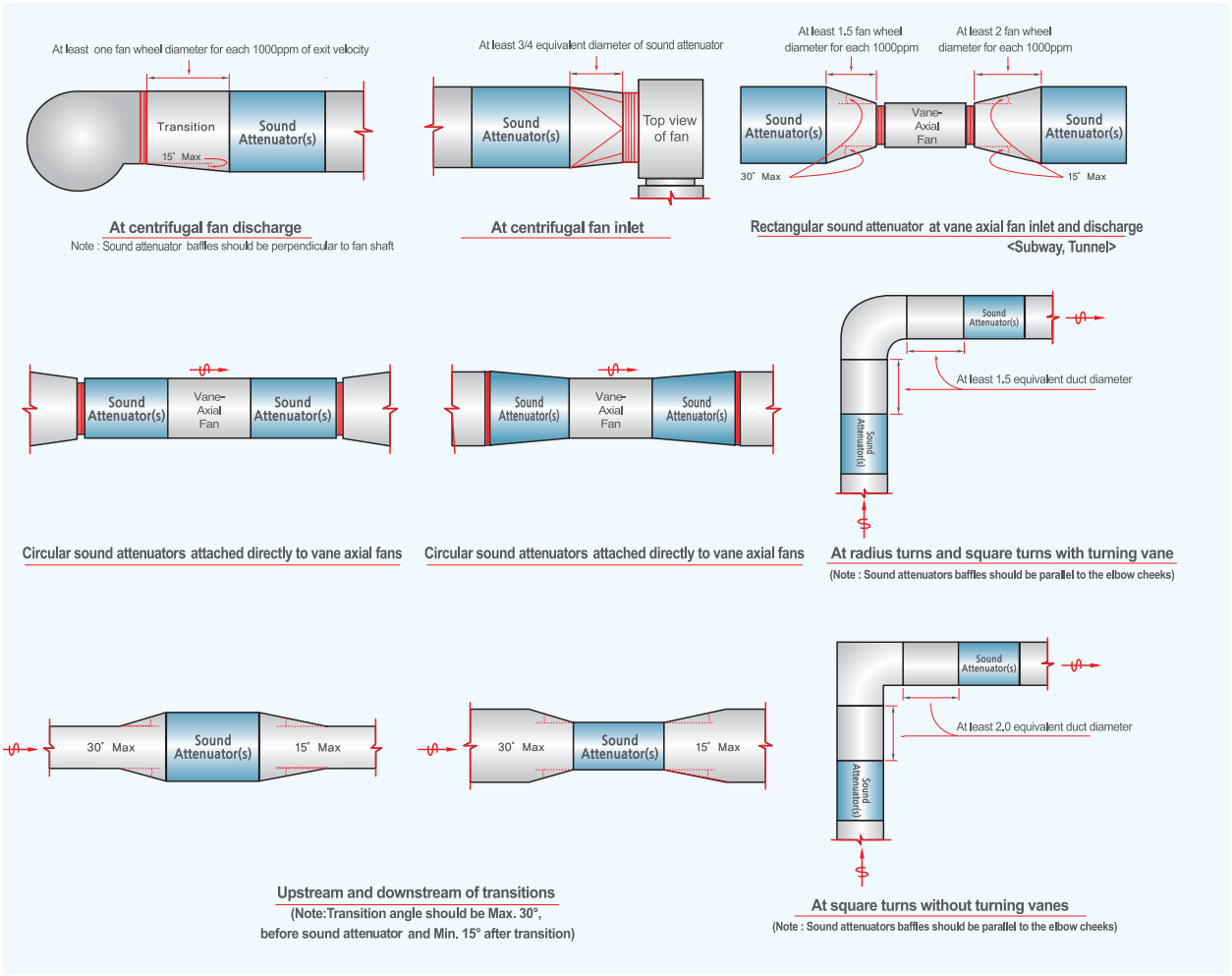
BEST
Controls ductborne noise and mechanical room noise that "breaks into" duct.

VERY GOOD
Practical alternate where fire damper is required at wall.

FAIR
Michanical room noise "break into" duct without reduction through sound attenuator

POOR
All noise in duct "breaks out" over occupied space before being reduced by sound attenuator

■ Guidelines for sound attenuator placement near fans and duct fittings



■ Installation features