OSA/L - OSAC/P SOUND ATTENUATORS

OPTIMA Sound Attenuators Overview
Optima attenuators are designed, tested and manufactured to meet the requirements of modern industrial and commercial projects. With many standard models to choose from, we can easily provide solutions to most applications. Where specialized noise and ventilation requirements are present, Optima has the ability to design and test products to meet project specific requirements.

Optima’s manufacturing facility enables attenuators to be built to any size and configuration. Where typically attenuators would be manufactured in banks we can fully assemble in-house larger attenuators to be transported and installed as a single unit. The use of larger attenuators provides a more economical build while also reducing the installation time and handling.

Optima attenuators are designed to reduce the noise level between two areas while still allowing the passage of air. Attenuators may be designed, built and tested to suit specialized applications; however most performance criteria can be met by selection from the wide range of standard models available. Optima Attenuators are built to suit both industrial and commercial applications.

Typical Sound Attenuator Applications
- Plant room ventilation.
- Silencers for fans & blowers.
- Air conditioning installations.
- Cooling towers & Chiller Yards.
- Power generation equipment.
- Acoustic enclosure ventilation.

Benefits of an Sound Attenuators
- Guaranteed performance.
- Large range of standard models.
- Range of flanging options.
- Choice of finishes.
- Better Aerodynamics.
- Sturdy construction to suit application.
- Consistent quality and performance.
- Built to all sizes.
- Custom designed where required.
- Lower Self Noise.
OSA/L Rectangular Sound Attenuators

Standard Construction
These would be constructed with pre-galvanized sheet steel casings with mastic filled Pittsburgh longitudinal joints. The material to be used is 'Prime galvanized mild steel to BS 2989 Z2 quality, lock forming and working up quality, normal spangle finish. Standard flanges and would generally be fabricated from pre-galvanized sheet as follows:

Acoustic Infill
Incorporated within the splitter frames would be our acoustic media consisting of semi rigid fiber slabs onto which is bonded a woven fiber mesh facing offering excellent strength and resistance to erosion. This material is inert, non-hygroscopic, vermin proof and rots proof, does not support bacteriological growth and has a Class 1 rating for surface spread of flame as measured to BS 476 Part 7, 1971). It is further guaranteed against surface erosion up to air velocities of 30m/sec.

Special Construction
These would be constructed with pre-galvanized sheet steel casings with mastic filled lock formed longitudinal joints. The material to be used is 'Prime galvanized mild steel to BS2989 Z2 quality, lock forming and working up quality, normal spangle finish and standard Coating. Casings would be turned back 12.5mm over the face of each end flange. End flanges would be manufactured from hot dip galvanized rolled steel angle and welded to the case. Splitter sections would be of sheet steel, fixed to the casing with sealed pop rivets. This type of construction has been tested in accordance with HVCA Specifications DW142 and at a pressure of 2500N/m', a leakage class of 'D' was obtained.

Alternative Fiber Secure Facing
A polyester membrane may be added to attenuators with pre-galvanized expanded perforated metal for applications where grease and oil is present and certain hospital clean air systems.

Paint Finish
Electrostatic Polyester Powder Paint finish is available in a range of RAL colors. This is a very durable finish now accepted within the industry as offering the best option for pre-galvanized sheet steel.

Attenuator Performance
OSA- Attenuator’s performance is derived from tests meeting the requirements of BS 4718 - 1971.

Order Code

Type (OSA – OSAL
10 = Splitter Thk. 100mm
20 = Splitter Thk. 200mm

Air Gap / 20 / 100 / 4000 X 1800 X 1800 / S1 / RAL 9010

Length, L Width, W Height, H Finish:
01 = GI Finish
S1 = Painted RAL
P1 = Powder Coated RAL

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Improving your environment

OSA/L - OSAC/P SOUND ATTENUATORS

Function
OSAC/P is a circular sound attenuator for use in circular ducts with 100 mm glass wool insulation for optimum sound attenuation. Available with a centre pod for extra high attenuation and with flange connection. Fire insulation to E30 standard.

Quick Facts
- Wide product range
- Very high attenuation
- Aerodynamically shaped centre body
- Fiber-safe surface layer
- Available with flange connection
- Connection diameters from 100 to 2000 mm

Design
OSAC/P is a circular sound attenuator for connection to circular ducts. The sound attenuating material consists of glass wool, which gives very good sound attenuation especially in the middle frequencies. The sound attenuating material consists of 100 mm long fiber glass wool which is covered with a layer of BGT. This material can resist considerably higher air velocities and mechanical wear than the standard fiber commonly used by other manufacturers. The sound attenuating material is also covered with perforated steel sheet over the BGT. OSAC/P is manufactured as standard in galvanized steel sheet.

Technical data, OSAC

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Order Code

Type (OSAC – OSACP)

OSAC / 4000 X 600 X 400 / S1 / RAL 9010

Finish:
- 01 = GI Finish
- S1 = Painted RAL
- P1 = Powder Coated RAL
Silencer Database, Selection & Duct System Analysis Software

Optima can save you time and money by working with you to design economically quiet duct systems. We do this by offering you, at no cost, using our silencer database, selection and duct analysis program. The program incorporates the most up-to-date design analysis algorithms recognized by ASHRAE. It dramatically reduces your engineering time, while designing quiet duct systems.

The program provides our clients with a complete eight-octave band acoustical analysis. It takes into account natural attenuation of duct and fittings, sound power splits, end reflection, insertion loss of insulated duct and fittings and the critical space/room attenuation. It allows entry of any manufacturer’s sound power level data as well as any manufacturer’s equipment sound level used in the system. It is a true, model-all program. The program produces a report that displays whether or not your design meets your required noise level within the critical space. If the sound levels are not met, the program will automatically choose a duct silencer for you based on your allowable height, width, and length and pressure loss. A final analysis report is produced for you to place in your project file for future reference.
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Typical Attenuator Drawings

- OSA /OSAL TYPE
- OSAC TYPE
- OSACP TYPE
- BEND TYPE

Attenuator before or after a bend

B = AIR GAP
A = SPLITTER THK. MAX. 200 MM

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Installation Details and Guidelines for OSA

Rectangular sound attenuators are supplied in multiple modules of many different sizes for convenience and economy in transport, handling and installation. When sound attenuator banks are large, multiple modules are supplied loose for erection at the job site. To avoid possible leaks and damage, two factors need to be considered. The first, fastening the individual sound attenuator modules together, and the second, sealing the joints between assembled modules to prevent leakage. There are many methods of assembling and sealing multiple modules.

ASSEMBLY

The multiple modules should be secured together using G.I strips riveted / welded to attenuator casing. Lightweight structural angles can be riveted / welded to attenuator casing as additional stiffener.

SEALING

Multiple modules must be properly sealed together at each end to prevent leakage. Separate nose clips can be fabricated which can be slipped over adjacent sound attenuator module shells. These clips can be button punched, tack welded, or crimped (D1). An alternate method would be to cut back one flange on one module then the adjoining flange bent over the cut back surface of the first module (D2).

ATTACHMENT TO DUCTWORK

Attachment to ductwork can be achieved by one of the following methods:
- S-clip with sheet metal screws and tape.
- Slip or lap joint with sheet metal screws and tape.
- Angle flanges with gaskets and bolts.
OPERATION AND MAINTENANCE GUIDELINES

DUCT SILENCERS INSTALLED INDOORS
Duct silencers installed inside buildings are designed to be essentially maintenance-free for the life of the product. The same method and routine used for periodic cleaning of the ductwork will also apply to the duct silencers. The acoustic media used in duct silencers is protected by the perforated metal liner so it will not erode during normal duct cleaning with vacuum equipment.

DUCT SILENCERS INSTALLED OUTDOORS
Silencers exposed to the outdoors should have all external joints and seams caulked with suitable sealant. Wherever possible, silencers should be shielded from exposure to moisture from rain or snow by providing suitable hoods, louvers or dampers. Occasional exposure of the silencers to moisture will not affect the longevity or the acoustical performance, provided that the water evaporates after exposure. If water is retained inside the silencer module casing or baffles, premature rusting may occur. To prevent this, drain holes should be provided in the silencer casing at all locations where water can collect. Duct silencers installed outdoors should be inspected at 6-month intervals. Silencers specified for outdoor locations require all seams to be caulked with mastic sealant for waterproofing, and all exposed welds to be coated with zinc-rich paint for rust proofing. Inspect the condition of the joints and replace loose or damaged sealant. Inspect the welds and casings for signs of rusting. Remove visible rust using a wire brush and recoat with zinc-rich spray paint.

SILENCERS EXPOSED TO HIGH HUMIDITY
Silencers exposed to high humidity levels, such as those installed on cooling tower discharge fans, should be inspected frequently for signs of rusting. Remove visible rust using a wire brush and recoat with zinc-rich spray paint. As a general rule, the lifetime of a silencer exposed to high humidity will be less than one installed in a dry indoor location. Replacement of the silencer may be required at 10-year intervals or even sooner under more extreme conditions.

SILENCERS EXPOSED TO CORROSIVE ELEMENTS
Silencers specified for installation in locations where the outer casings will be exposed to high temperature or corrosive elements are typically constructed with corrosive-resistant materials or finished with corrosion-resistant coatings. Similarly, silencers that must convey high-temperature or corrosive gases will be constructed internally with non-corrosive materials. The required maintenance and expected lifetime of these products will vary. Consult the factory for specific maintenance information for silencers used in such applications.

If the Sound Attenuators has been structurally damaged, contact Optima factory for assistance.

Call us to discuss your requirements for noise control, and know how to employ the Model OSA–OSAC/P Sound Attenuators to control your noise problems.