

Optima International
PO Box 115858
Deira
Dubai, UAE
www.optimain.ae



HVAC Duct Silencers and Louvers RECOMMENDED SPECIFICATION

1.01 GENERAL-

- A. Furnish and install Optima International models OSAC, OSAC / P silencers – OSA –ALD 1/2 Acoustic Louvers of the types and sizes shown on the plans and/or listed in the schedule. Silencers / Acoustic Louvers shall be the product of Optima International. Any specification change must be submitted in writing and approved by the Architect/Engineer, in writing, at least 10 days prior to the bid-date.
- B. Warranty Period: 1 year from date of delivery.

2.01 MATERIALS-

- A. Outer casings of standard rectangular straight and elbow silencers shall be made of 22 gauge; lock former quality galvanized steel, stainless steel, aluminum).
- B. High Transmission Loss (HTL) outer casings of rectangular straight and elbow silencers shall be made of 16 or 10 gauge; welded and caulked galvanized steel, Type. welds shall receive a single shop-coat.
- C. Outer casings of standard circular silencers shall be made, galvanized steel in the following gauges:
 - 12-26 inches: 22 ga.
 - 27-60 inches: 18 ga.
 - 61-84 inches: 16 ga
- D. Outer casings of reactive (no media) rectangular straight and rectangular elbow silencers shall be made of 22 gauge; lock former quality galvanized steel.
- E. Interior baffles/liner/bullet for standard rectangular straight, rectangular elbow and circular silencers shall be not less than 22 gauge; lock former quality, perforated steel, galvanized steel.
- F. Filler material, except for reactive (no media) silencers shall be inorganic glass fiber of a proper density to obtain the specified acoustic performance and be packed under not less than 5% compression to eliminate voids due to vibration and settling. Material shall be inert, vermin and moisture proof.

3.01 CONSTRUCTION-

- A. Units shall be constructed in accordance with the standard recommendations for ductwork. Seams shall be locked. Rectangular casing longitudinal seams shall be in the corners of the silencer shell to provide maximum unit strength and rigidity. Interior partitions shall be fabricated from perforated sheets and shall have radiused entrance shapes so as to provide the maximum aerodynamic efficiency and minimum self-noise characteristics in the sound attenuator. Interior partition tail sections shall be configured so as to provide pressure-regain.
- B. Attachment of the interior partitions to the casing shall be by means of an interlocking track assembly or spot welded to the outer silencer casing. Tracks shall be solid material and shall be welded to the outer casing. The track assembly shall stiffen the exterior casing, provide a reinforced attachment detail for the interior partitions, and shall maintain a uniform airspace width along the length of the silencer for consistent aerodynamic and acoustic performance. Section-retainers shall be welded to the casing and interior partitions to provide further reinforcement and integrity. Interior partitions shall be additionally secured to the outer casing with welded nose clips at both ends of the sound attenuator.
- C. Interior partitions for circular silencers shall be secured with galvanized steel radial mounting brackets welded to the partition and the outer casing. The radial brackets shall be installed full length and at 120 degree angles to each other to assure uniform spacing for consistent aerodynamic and acoustic performance.
- D. Width and height of rectangular straight and elbow silencer casings shall not exceed duct dimensions.

4.01 ACOUSTIC PERFORMANCE-

- A. All silencer ratings shall be determined in a duct-to-reverberant room independent test facility that provides for airflow in one direction and sound in both directions through the test silencer in accordance with ASTM Specification E-477. The test set-up and procedure shall be such that all effects due to end reflection, directivity, and flanking transmission standing waves and test chamber sound absorption are eliminated.
- B. Acoustic rating shall include insertion loss (IL).

5.01 AERODYNAMIC PERFORMANCE-

- A. Static pressure loss of silencers shall not exceed those listed in the silencer schedule as the airflow indicates. Tests shall be reported on the identical units for which acoustic data is presented.

6.01 CERTIFICATION-

- A. With submittals, the manufacturer shall supply certified test data on insertion loss, self-noise power levels, and acoustic performance. Test data shall be for a standard product. All rating tests shall be conducted in the same facility, shall utilize the same silencer, and shall be open to inspection upon request from the Architect/Engineer.

7.01 DUCT TRANSITIONS-

- A. When transitions are required to adapt silencer dimensions to connecting ductwork they shall be furnished by the installing contractor.

8. Louvers Specifications

- Acoustical Louvers as shown on the contract drawing, or as tabulated shall be installed to reduce sound transmission to occupied areas.
- Acoustical Louvers shall be modular, and shall consist of (18ga) steel outer casing and (22ga) perforated steel foil liner, all of which have been mill galvanized.
- The acoustical absorption media shall be glass fiber packed under compression. The fiberglass shall be a density calculated to provide the published acoustical and aerodynamic performance, fill material shall be class 1, as tested in accordance with ASTM E-84.
- Acoustical Louvers shall be Model OSA-ALD1/2.