# **OLSON ACOUSTIC SILENCERS**

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# FEATURES AND BENEFITS:

- 1. Robust construction with modular splitter frames.
- 2. Acoustic infill material are selected to achieve maximum sound insertion loss.
- 3. Aerodynamically designed splitters with rounded nose inlet and tapered discharge significantly reduce turbulence and pressure loss, increase noise attenuation, and lower generated noise.
- 4. Acoustic infills are protected with steel plate perforated with preferred hole size and arrangement to minimize erosion and enhance low-frequency attenuation.
- 5. Sturdy construction with individual splitter frame design reduces casing radiated noise and enables handling and installation without damage to the silencer.
- 6. Reliable design and construction methods prevent premature damage to the silencer.
- 7. Large silencers are constructed in multiple modules for easy assembly on-site with accessory provided.
- 8. All silencers are tested in our in-houese accredited laboratory for pressure loss, generated noise, and sound insertion loss.
- 9. High-quality design and construction made possible with many years of experience with acoustic application, in-house sound testing facilities, and high-end manufacturing equipment.
- 10. The silencer is cleaned, and its two ends are sealed with plastic film at the factory before delivery to keep the internal parts clean during storage at the site.
- 11. Custom design for special requirement is available upon request.

### SIZE AVAILABILITY:

- 1. Minimum size single module construction:
- 1.1. 600W x 600H x 600L mm
- 2. Maximum size single module construction:
- 2.1. 2400W x 1200H x 1200L mm
- 2.2. 1200W x 1200H x 2400L mm

\*The maximum height is 1125mm while the length is larger than 1200mm for single module

- construction.
- 3. Larger size silencers can be constructed of multiple modules arrangement and deliver to site for assembly by others. Refer to the modular arrangement SBXEP010 and installation instruction.

Isometric-2: Multiple Modules of

Silencer Model HA40

# **MATERIAL OPTIONS:**

For attenuator size larger than 600W x 600H mm and smaller than 900W x 900H mm,

- □ Galvanized Steel, 1.0mm thickness
- □ SUS304 2B, 1.0mm
- □ SUS316 2B, 1.0mm

For silencer size above 900W x 900H mm,

- □ Galvanized Steel, 1.2mm thickness
- □ SUS304 2B, 1.2mm thickness
- □ SUS316 2B, 1.2mm thickness

### **ACOUSTIC INFILL OPTIONS:**

□ Fiberglass

□ Mineral wool

# ACOUSTIC INFILL PROTECTION OPTIONS:

 $\Box$  Galvanized steel perforated sheet, 0.5mm thickness

 $\Box$  Galvanized steel perforated sheet, 0.8mm thickness

 $\Box$  SUS304 perforated sheet, 0.5mm thickness

 $\Box$  SUS304 perforated sheet, 0.8mm thickness

 $\Box$  SUS316 perforated sheet, 0.5mm thickness

□ SUS316 perforated sheet, 0.8mm thickness

- □ Fiberglass cloth
- □ Polyester film

### **FLANGES OPTIONS:**

□ Non



| In the interest of product improvement, we reserved the       |           | All dimensions | are in mm. |            |             |                        |
|---|-----------|----------------|------------|------------|-------------|------------------------|
| Title : AHU AND FAN RECTANGULAR SPLITTE<br>SPLITTER MODEL HA  | Project : |                |            |            |             |                        |
| OLSON ACOUSTICS   | Dwn. By : | ChunHua C      | hunHua     | Date :     | 05/11/2020  | Scale :                |
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### **INTRODUCTION:**

The underground vehicular tunnel ventilation system is designed for, mechanical ventilation during traffic congestion and smoke extraction during an emergency. Due to the vast amount of toxic smoke that need to be extracted and a similar amount of fresh air that needs to be pumped into the tunnel, during emergency high speed and high static fans are usually used. Hence heavy-duty silencer is required to handle the turbulence created by the fan. The OLSON Acoustics tunnel ventilation silencer Model HABT40 is specially designed for this application.

### **FEATURES AND BENEFITS:**

- 1. High-quality design and construction with heavy gauge hot-dip galvanized steel or stainless steel SUS304/316L.
- 2. Acoustic fiberglass infill material are selected with appropriate density to achieve maximum sound insertion loss.
- 3. Aerodynamically designed splitter with rounded nose inlet and discharge fairing significantly reduce turbulence and pressure loss, increase noise attenuation, and lower generated noise.
- 4. The splitter is designed for bi-direction airflow.
- 5. Sturdy construction with individual splitter frame design reduces casing radiated noise and enables handling and installation without damage to the silencer.
- 6. Reliable design and construction methods prevent premature damage to the silencer.
- 7. Large silencers are constructed in multiple modules for easy assembly on-site with accessory provided.
- 8. All silencers are tested in our in-house accredited laboratory for pressure loss, generated noise, and sound insertion loss.
- 9. High-quality design and construction made possible with many years of experience with acoustic application, in-house sound testing facilities, and high-end manufacturing equipment.
- 10. The silencer is designed for a temperature rating of 250° C for 2 hours.
- 11. Silencer performance tested for forward and reversed flow.
- 12. Custom design for special requirement is available upon request.

### SIZE AVAILABILITY:

1. Minimum size single module construction:

- 1.2. 900W x 900H x 1200L mm.
- 2. Maximum size single module construction: 2.1. 2400W x 1200H x 1200L mm
  - 2.2. 1200W x 1200H x 1200L mm
- \*The maximum height is 1125mm while the

length is larger than 1200mm for single module construction.

3. Larger size silencer can be constructed of multiple modules arrangement and deliver to site for assembly by others. Refer to the modular arrangement SBXEP011 and installation instruction.

# **MATERIAL OPTIONS:**

- □ Galvanized Steel, 1.2mm thickness
- □ SUS304 2B, 1.2mm thickness
- □ SUS316L 2B, 1.2mm thickness

# ACOUSTIC INFILL OPTIONS:

# ACOUSTIC INFILL PROTECTION OPTIONS:

 $\Box$  Galvanized steel perforated sheet, 0.8mm thickness

□ SUS304 perforated sheet, 0.8mm

thickness

□ SUS316L perforated sheet, 0.8mm thickness

# **FLANGES OPTIONS:**

# 🗆 Non



| In the interest of product improvement, we reserved the   |           | All dimensions | are in mm. |            |             |             |
|---|-----------|----------------|------------|------------|-------------|-------------|
| Title : UNDERGROUND VEHICULAR TUNNEL VENTILATION RECTANGULAR   SPLITTER SILENCER MODEL HABT40 - Page 2 of 2 |           |                |            |            |             |             |
| OLSON ACOUSTICS   | Dwn. By : | ChunHua        | ChunHua    | Date :     | 05/11/2020  | Scale :     |
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### **INTRODUCTION:**

The interior of the silencer, when connected to the discharge of a cooling tower is continuously exposed to saturated air. At the same time, the exterior of the silencer is exposed to the prevailing weather conditions. Standard silencer construction will not withstand such operating conditions for the long term. Most cooling towers are installed on the roof and at a high level which makes it very challenging to service or to replace. The cost of maintenance will be very high. It is imperative that the silencer is constructed of the right material both inside and outside to prevent premature failure. The OLSON Acoustic Model CT33 silencer is specially designed for this application.

### FEATURES AND BENEFITS:

- 1. Recycle glass acoustic infill used to ensure life-long performance at elevated temperature and wet conditions at cooling tower discharge.
- 2. Aerodynamically designed splitters with rounded nose inlet and tapered discharge significantly reduce turbulence and pressure loss, increase noise attenuation, and lower generated noise.
- 3. The splitter is designed for uni-directional airflow.
- 4. Acoustic infills are protected with steel plate perforated with preferred hole size and arrangement to minimize erosion and enhance low-frequency attenuation.
- 5. Sturdy construction with individual splitter frame design reduces casing radiated noise and enables handling and installation without damage to the silencer.
- 6. Reliable design and construction methods prevent premature damage to the silencer.
- 7. Large silencers are constructed in multiple modules for easy assembly on-site with accessory provided.
- 8. All silencers are tested in our in-house accredited laboratory for pressure loss, generated noise, and sound insertion loss.
- 9. High-quality design and construction made possible with many years of experience with acoustic application, in-house sound testing facilities and high-end manufacturing equipment.
- 10. The silencer is cleaned, and its two ends are sealed with plastic film at the factory before delivery to keep the internal parts clean during storage at the site.
- 11. Custom design for special requirement is available upon request.

# SIZE AVAILABILITY:

- 1. Minimum size single module construction:
- 1.1. 600W x 600H x 600L mm
- 2. Maximum size single module construction:
- 2.1. 2400W x 1200H x 1200L mm
- 2.2. 1200W x 1200H x 2400L mm
- \*The maximum height is 1125mm while the length is larger than 1200mm for single module
- construction.
- 3. Larger size silencers can be constructed of multiple modules arrangement and deliver to site for assembly by others. Refer to the modular arrangement SBXEP010 and installation instruction.

### **MATERIAL OPTIONS:**

- □ SUS304 2B, 1.0mm thickness
- $\Box$  SUS316 2B, 1.0mm thickness

# ACOUSTIC INFILL PROTECTION OPTIONS:

□ SUS304 perforated sheet, 0.8mm thickness

 $\Box$  SUS316 perforated sheet, 0.8mm

thickness

Delyester Film

# **FLANGES OPTIONS:**

□ Non



Model CT33 - 2 x 2 module arrangement

| In the interest of product improvement, we reserved the                                   |           | All dimensions | are in mm. |            |             |             |
|---|-----------|----------------|------------|------------|-------------|-------------|
| Title : COOLING TOWER DISCHARGE RECTANGULAR SPLITTER SILENCER<br>MODEL CT33 - Page 2 of 2 |           |                |            |            |             |             |
| OLSON ACOUSTICS   | Dwn. By : | ChunHua (      | ChunHua    | Date :     | 05/11/2020  | Scale :     |
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# **INTRODUCTION:**

An offshore platform is uniquely hazardous in that persons are very far out to be sea and surrounded by vast quantities of combustible material and other toxic gases. The size and composition of the crew of an offshore installation will vary significantly from platform to platform. Because of the cost-intensive nature of operating an offshore platform, equipment and ductwork including silencers are generally constructed of heavy gauge stainless steel SUS316L material for its corrion resistance and durability. OLSON Acoustics' Marine and Offshore silencer Model OM33 is specially designed for this application.

### FEATURES AND BENEFITS:

- 1. Heavy construction with modular splitter frames.
- 2. Flange design according to ISO 15138.
- 3. High-quality design and construction with stainless steel SUS316L parts.
- 4. The acoustic splitter is designed for uni-direction airflow.
- 5. Acoustic infill material are selected to achieve maximum sound insertion loss.
- 6. Aerodynamically designed splitters with rounded nose inlet and tapered discharge significantly reduce turbulence and pressure loss, increase noise attenuation, and lower generated noise.
- 7. Acoustic infills are protected with steel plate perforated with preferred hole size and arrangement to minimize erosion and enhance low-frequency attenuation.
- 8. Additional fiberglass cloth protection to prevent erosion of infill material.
- 9. Sturdy construction with individual splitter frame design reduces casing radiated noise and enables handling and installation without damage to the silencer.
- 10. Reliable design and construction methods prevent premature damage to the silencer.
- 11. Large silencers are constructed in multiple modules for easy assembly on-site with accessory provided.
- 12. All silencers are tested in our in-houese accredited laboratory for pressure loss, generated noise, and sound insertion loss.
- 13. High-quality design and construction made possible with many years of experience with acoustic application, in-house sound testing facilities, and high-end manufacturing equipment.
- 14. The silencer is cleaned, and its two ends are sealed with plastic film at the factory before delivery to keep the internal parts clean during storage at the site.
- 15. Custom design for special requirement is available upon request.

# SIZE AVAILABILITY:

- 1. Minimum size single module construction:
- 1.1. 300W x 300H x 600L mm
- 2. Maximum size single module construction:
  - 2.1. 2400W x 1200H x 1200L mm
  - 2.2. 1200W x 1200H x 2400L mm
- \*The maximum height is 1125mm while the length is larger than 1200mm for single module construction.
- 3. Larger size silencers can be constructed of multiple modules arrangement and deliver to site for assembly by others. Refer to the modular arrangement SBXEP010 and installation instruction.

| In the interest of product improvement, we reserved the       |           | All dimensions | are in mm. |            |             |         |
|---|-----------|----------------|------------|------------|-------------|---------|
| Title : OIL AND GAS RECTANGULA<br>MODEL OM33 -                | Project : |                |            |            |             |         |
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## **MATERIAL OPTIONS:**

- □ SUS316L 2B, 1.5mm thickness
- □ SUS316L 2B, 3.0mm thickness
- □ Other, Specify

# **ACOUSTIC INFILL OPTIONS:**

- □ Fiberglass
- $\Box$  Recycle glass

### **Splitter Assembly:**

- $\Box$  Fixed
- $\Box$  Removable

# ACOUSTIC INFILL PROTECTION OPTIONS:

□ SUS316L perforated sheet, 0.8mm

thickness with 2B mill finish.

- □ SUS316L perforated sheet, 1.2mm
- thickness with 2B mill finish.
- □ Fiberglass Cloth
- □ Other, Specify\_\_\_\_\_

# **FLANGES OPTIONS:**

□ Non

□ Standard Pre-punched Flange (refer to drawing)

# **FLANGE OPTIONS:**

- $\Box$  3mm thickness ( for light duty)
- $\Box$  4mm thickness (H  $\leq$  350mm)
- $\Box$  5mm thickness (350mm < H  $\leq$  1000mm)
- $\square$  8mm thickness (H > 1000mm)
- □ Other, Specify \_\_\_\_\_



# **INTRODUCTION:**

Commonly rectangular splitter silencer is tested based on a size of 600mm width x 600mm height (standard unit). The splitter of the standard unit is similar in construction to a section of a large silencer. Therefore, it is acceptable practice to apply the sound insertion loss performance obtained from the test of the standard unit to a large silencer. However, tests have proven that the sound attenuation of a smaller silencer is quite different from the standard unit and, hence, it is incorrect to use data for the standard unit for the smaller silencer for selection. OLSON Acoustics has tested many small silencers, some with half splitters that exhibit excellent sound insertion loss properties.

#### **FEATURES AND BENEFITS:**

- 1. Robust construction with modular splitter frames.
- 2. Acoustic infill material are selected to achieve maximum sound insertion loss.
- 3. Aerodynamically designed splitters with rounded nose inlet and tapered discharge significantly reduce turbulence and pressure loss, increase noise attenuation, and lower generated noise.
- 4. Acoustic infills are protected with steel plate perforated with preferred hole size and arrangement to minimize erosion and enhance low-frequency attenuation.
- 5. Sturdy construction with individual splitter frame design reduces casing radiated noise and enables handling and installation without damage to the silencer.
- 6. Reliable design and construction methods prevent premature damage to the silencer.
- 7. Large silencers are constructed in multiple modules for easy assembly on-site with accessory provided.
- 8. All silencers are tested in our in-houese accredited laboratory for pressure loss, generated noise, and sound insertion loss.
- 9. High-quality design and construction made possible with many years of experience with acoustic application, in-house sound testing facilities, and high-end manufacturing equipment.
- 10. The silencer is cleaned, and its two ends are sealed with plastic film at the factory before delivery to keep the internal parts clean during storage at the site.
- 11. Custom design for special requirement is available upon request.

### SIZE AVAILABILITY:

- 1. Minimum size of construction:
- 1.1. 300W x 300H mm
- 2. Maximum size of construction:
- 2.1. 550W x 550H mm
- 3. Standard length size:
- □ 600mm
- □ 900mm
- □ 1200mm
- □ 1200mm
- □ 1800mm
- $\square$  2100mm
- □ 2400mm

# NOTE:

1. Size of silencer <450mm will be supplied with one half splitter only. ( Refer to the Isometeric-2)

### **MATERIAL OPTIONS:**

- □ Galvanized Steel, 0.7mm thickness
- $\Box$  SUS304 2B, 0.7mm thickness
- □ SUS316 2B, 0.7mm thickness

## **ACOUSTIC INFILL OPTIONS:**

- □ Fiberglass
- $\Box$  Mineral wool

# ACOUSTIC INFILL PROTECTION OPTIONS:

 $\Box$  Galvanized steel perforated sheet, 0.5mm thickness

 $\Box$  Galvanized steel perforated sheet, 0.8mm thickness

 $\Box$  SUS304 perforated sheet, 0.5mm thickness

 $\Box$  SUS304 perforated sheet, 0.8mm thickness

 $\Box$  SUS316 perforated sheet, 0.5mm thickness

 $\Box$  SUS316 perforated sheet, 0.8mm thickness

- $\Box$  Fiberglass cloth
- $\Box$  Polyester film

### **FLANGES OPTIONS:**

□ Non



Isometric-2: MODEL HA40S with one half splitter

| In the interest of product improvement, we reserved the                     |           | All dimensions | are in mm. |            |             |                        |
|---|-----------|----------------|------------|------------|-------------|------------------------|
| Title : SMALL DUCT RECTANGULAR SPLITTER SILENCER MODEL HA40S<br>Page 2 of 2 |           |                |            |            |             |                        |
| OLSON ACOUSTICS   | Dwn. By : | ChunHua        | ChunHua    | Date :     | 05/11/2020  | Scale :                |
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# **INTRODUCTION:**

Due to limited ceiling space, many AHU supply air silencers have a high aspect ratio as much as six; typical sizes are 2400 x 350mm and 2400 x 400mm. In such a case, it is more economical and technically better to use a half horizontal splitter as it may perform better than the silencer with vertical splitter as tests have shown. Also, where duct downstream includes and elbow that is internally insulated the transition between and silencer and duct is smoother resulting in significantly less pressure loss and generate less rumbling noise. However, the silencer should be limited to a height of 450mm to avoid higher flow resistance. If the height needs to be above 450mm, two half splitter shall be recommended for height up to 600mm. Above this height, vertical splitters are recommended.

### **FEATURES AND BENEFITS:**

- 1. Robust construction with modular splitter frames.
- 2. Better transition downstream.
- 3. Acoustic infill material are selected to achieve maximum sound insertion loss.
- 4. Aerodynamically designed splitters with rounded nose inlet and tapered discharge significantly reduce turbulence and pressure loss, increase noise attenuation, and lower generated noise.
- 5. Acoustic infills are protected with steel plate perforated with preferred hole size and arrangement to minimize erosion and enhance low-frequency attenuation.
- 6. Sturdy construction with individual splitter frame design reduces casing radiated noise and enables handling and installation without damage to the silencer.
- 7. Reliable design and construction methods prevent premature damage to the silencer.
- 8. Large silencers are constructed in multiple modules for easy assembly on-site with accessory provided.
- 9. All silencers are tested in our in-houese accredited laboratory for pressure loss, generated noise, and sound insertion loss.
- 10. High-quality design and construction made possible with many years of experience with acoustic application, in-house sound testing facilities, and high-end manufacturing equipment.
- 11. The silencer is cleaned, and its two ends are sealed with plastic film at the factory before delivery to keep the internal parts clean during storage at the site.
- 12. Custom design for special requirement is available upon request.

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Title :

### **MATERIAL OPTIONS:**

- □ Galvanized Steel, 1.2mm thickness
- □ SUS304 2B, 1.0mm thickness
- □ SUS304 2B, 1.2mm thickness

#### **ACOUSTIC INFILL OPTIONS:**

- □ Fiberglass
- □ Mineral wool

### **ACOUSTIC INFILL PROTECTION OPTIONS:**

- □ Galvanized steel perforated sheet, 0.5mm thickness
- □ Galvanized steel perforated sheet, 0.8mm thickness
- □ SUS304 perforated sheet, 0.5mm thickness
- □ SUS304 perforated sheet, 0.8mm
- thickness
- □ Fiberglass cloth
- □ Polyester film

### **FLANGES OPTIONS:**

- □ Non
- □ Standard Pre-punched Flange (refer to drawing)

### NOTE:

1. Size of silencer H<450mm will be supplied with one half splitter only. (Refer to the Isometeric-2)

SBXEP007-R1

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## **INTRODUCTION:**

Standard silencer typically uses fiberglass or mineral wool infill, which is prone to erosion, causing damage to downstream high-efficiency filters. OLSON Acoustics has the silencer for the clean environment application that uses acoustic foam, a melamine foam called Basotect<sup>®</sup> that withstands a much higher velocity than fiberglass and mineral wool. To prevent the acoustic foam infill of our CR33 and CR50 silencers from any erosion, it is lined with cloth fabric and selected perforated metal. Basotect<sup>®</sup> is a thermoset, and this, in the event of afire, the material does not melt or produce burning droplets when it comes into contact with flames. The foam simply chars and produces a small amount of smoke, and there is no afterglow, making Basotect<sup>®</sup> particularly suitable for applications with high fire safety requirements. Its high fire safety performance (which meets BS476 Parts6/7, Class 0) and good sound absorption make it ideal for building and construction. Melamine's high open-cell content makes it ideal for acoustic insulation. The open-cell structure allows better penetration of sound waves into the foam, thus minimizing surface reflection. Because of its open-cell, fine foam structure, the sound absorption values in the medium and high-frequency ranges are excellent.

Basotect<sup>®</sup>: Basotect<sup>®</sup> is a registered trade name of BASF SE.

### FEATURES AND BENEFITS:

- 1. Acoustic infill material are selected to achieve maximum sound insertion loss.
- 2. Aerodynamically designed splitters with rounded nose inlet and tapered discharge significantly reduce turbulence and pressure loss, increase noise attenuation, and lower generated noise.
- 3. The splitter is designed for uni-directional airflow.
- 4. Acoustic infills are protected with steel plate perforated with preferred hole size and arrangement to minimize erosion and enhance low-frequency attenuation.
- 5. Sturdy construction with individual splitter frame design reduces casing radiated noise and enables handling and installation without damage to the silencer.
- 6. Reliable design and construction methods prevent premature damage to the silencer.
- 7. Large silencer are constructed in multiple modules for easy assembly on-site with accessory provided.
- 8. All silencers are tested in our in-house accredited laboratory for pressure loss, generated noise, and sound insertion loss.
- 9. High-quality design and construction made possible with many years of experience with acoustic application, in-house sound testing facilities and high-end manufacturing equipment.
- 10. The silencer is cleaned, and its two ends are sealed with plastic film at the factory before delivery to keep the internal parts clean during storage at the site.
- 11. Custom design for special requirement is available upon request.

### SIZE AVAILABILITY:

- 1. Minimum size single module construction:
- 1.1. 600W x 600H x 600L mm
- 2. Maximum size single module construction:
- 2.1. 2400W x 1200H x 1200L mm
- 2.2. 1200W x 1200H x 2400L mm

\*The maximum height is 1125mm while the length is larger than 1200mm for single module construction.

3. Larger size sound attenuators can be constructed of multiple modules arrangement and deliver to site for assembly by others. Refer to the modular arrangement SBXEP010 and installation instruction.

| In the interest of product improvement, we reserved the                            |           | All dimensions | are in mm. |            |            |             |
|--|-----------|----------------|------------|------------|------------|-------------|
| Title : CLEAN ENVIRONMENT RECTANGULAR SPLITTER SILENCER   MODEL CR33 - Page 2 of 2 |           |                |            |            |            |             |
| OLSON ACOUSTICS  | Dwn. By : | ChunHua        | ChunHua    | Date :     | 05/11/2020 | Scale :     |
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### **MATERIAL OPTIONS:**

□ SUS304 2B, 1.2mm thickness □ SUS316 2B, 1.2mm thickness

# ACOUSTIC INFILL PROTECTION OPTIONS:

□ SUS304 perforated sheet, 0.5mm thickness

 $\Box$  SUS316 perforated sheet, 0.5mm thickness

 $\Box$  Cloth fabric liner

### **FLANGES OPTIONS:**

□ Non