Noise Control Products

Elbow Silencers

www.pottorff.com
Pottorff elbow silencers are engineered to provide a highly configurable noise control solution tuned to meet project specific acoustic and aerodynamic requirements. By tailoring construction elements including the Unit Width, Pressure Class, Fill Materials and internal baffle geometries, Pottorff provides a robust product offering backed by data collected in our NVLAP (Lab Code 201006-0) accredited Acoustical Testing Laboratory.

## Elbow Silencers

1. **Pressure Class**
   - Silencer selection involves maximizing noise control performance while minimizing pressure loss. Pottorff offers a range of Pressure Class options, which describes the balance of acoustic and aerodynamic performance.

<table>
<thead>
<tr>
<th>MODEL</th>
<th>SHAPE</th>
<th>FILL MATERIAL</th>
<th>FILL PROTECTION</th>
<th>UNIT WIDTH</th>
<th>PRESSURE CLASS</th>
</tr>
</thead>
<tbody>
<tr>
<td>E</td>
<td>ELBOW</td>
<td>FIBERGLASS</td>
<td>NONE</td>
<td>12</td>
<td>G</td>
</tr>
<tr>
<td>F</td>
<td>CIRCULAR</td>
<td>RECYCLED COTTON</td>
<td>POLYMER LINED</td>
<td>36</td>
<td></td>
</tr>
<tr>
<td>G</td>
<td>RECTANGULAR</td>
<td>NO FILL</td>
<td>FIBERGLASS CLOTH</td>
<td>24</td>
<td></td>
</tr>
</tbody>
</table>

Model names define Silencer Shapes, Fill Material Options, Unit Diameters and Pressure Class to configure unique product offerings and ensure accuracy with specifications.

## Intermediate Unit Sizes

Intermediate unit sizes available from 8" - 36" (203 - 914).

- **Mid/High Frequency**
  - Smaller Unit Widths have narrow baffle spacing and are optimized for control of mid/high frequency noise.

- **Low Frequency**
  - Larger Unit Widths have thicker baffles and wider spacing optimized for control of low frequency noise.

## Pressure Class

1. **Recommended Velocity Range**

   | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S |
   | >2000 | 2000 | 1500 | 1250 | 1000 | 750 | 500 |

1. Pressure classes at nominal velocities yield approximate pressure drops of 0.2" to 0.55 w.g. (50 Pa to 87 Pa)

## Unit Width

Pottorff elbow silencers are designed for noise control in applications where space is limited. These silencers utilize the same parallel baffle configurations and Unit Widths as our rectangular silencers but with an elbow shape and customizable throat dimensions. Unit Width corresponds to the physical width of the baffle and is selected based on the required frequency range of noise control.

## Optimal Aerodynamic Performance

Higher pressure classes use baffle configurations to minimize pressure loss.

## Optimal Acoustic Performance

Lower pressure classes use baffle configurations to maximize insertion loss.
Silencer baffle shapes influence acoustic and aerodynamic performance. Pottorff offers baffle shape options to minimize pressure loss for a range of airflow velocities.

Extended Width
Noise control performance is related to baffle width with larger baffle widths providing greater control of low frequency energy. Extended Width silencers increase the width of the baffle outside of the airstream providing improved low frequency noise control without increasing pressure loss.

Multiple Sections
Elbow silencers are fabricated to align with project ductwork dimensions. A range of Unit Widths are available for a given duct dimension. These are grouped in single sections limited in size for shipping and handling purposes. Multiple sections are field assembled as silencer banks as needed to align with project dimensional requirements.

Centerline Length
The overall Centerline Length is used to define acoustic and aerodynamic performance of elbow silencers, which is calculated based upon the silencer’s width and throat dimensions. Where elbow silencers are fabricated in multiple sections, the Centerline Length is defined based upon the width of individual section sizes.

Configurable Length
Elbow silencers are designed for noise control in applications where space is limited. Customizable throat dimensions allow staggered leg lengths to fit elbows silencers in the most difficult spaces.
Materials
Materials of internal and external components are typically selected based on the installed condition of the silencer. Pottorff offers a range of material options suitable for indoor, outdoor and corrosive environments including Galvanized Steel, Paint Grip Steel, 304 Stainless Steel and 316 Stainless Steel. Weight of galvanized finishes can be provided to meet project specific requirements.

Outer Casing
Ductwork in close proximity to mechanical equipment can yield elevated levels of duct breakout noise or noise that radiates through the duct walls and into occupied spaces. The Outer Casing of duct silencers can be selected with heavier gauge materials to control duct breakout noise. For the most critical applications, such as direct downblast rooftop units above noise sensitive spaces, High Transmission Loss (HTL) casings and double wall constructions offer the best control of duct breakout noise.

Fill Material
Noise control in duct silencers is achieved using baffle assemblies filled with a sound absorptive material or specially tuned chambers. Pottorff offers a range of fill material types for a range of applications.

Fill Protection
Project requirements often require fill materials to be protected from exposure to the airstream or erosion in high velocity applications. Pottorff offers a range of fill protection options for specific applications.

Perforated Materials
The Perforated Material is an acoustically transparent screen that allows sound to pass through silencer baffles where it can be absorbed, while also providing a layer of protection against air erosion of fill materials. Alternative perforation patterns are used to maximize performance of resonant chambers for No-Fill silencers.
About Us

Pottorff offers a comprehensive line of noise control products used extensively in projects across the globe. For over 35 years we have been dedicated to providing the commercial and industrial acoustic markets with excellence in both products and service. Continuously improving our manufacturing techniques and equipment allows a delivery schedule second to none. Creating innovative tools that predict noise levels and simplify product selection makes Pottorff the company to choose to get the right product for every application.

Pottorff’s in-house Acoustical Laboratory, outfitted with state-of-the-art hardware and software tools, allow us to conduct testing according to the latest ASTM standards. Our laboratory is NVLAP accredited (Lab Code 201006-0) to evaluate dynamic insertion loss, self-generated noise and pressure drop in strict accordance with ASTM E477-13.