AERO ACOUSTIC DIFFUSER™
FOR E-SERIES PLENUM FANS
Traditional acoustic silencers attenuate sound at the expense of additional pressure drop resulting in higher power consumption and lower aerodynamic efficiencies. Twin City Fan and Blower's patented Aero Acoustic Diffuser™ (U.S. Patent 8025477) achieves discharge sound power reduction by up to 3dBA. Static pressure is boosted and aerodynamic static efficiency increases by up to 4%.

When used with Twin City Fan’s E-Series plenum fans, static efficiency up to 80% is achieved on a size 365 (36.5” wheel diameter)...the best in the industry.

Higher air handling unit system pressure drops, equating to more coil rows or high efficiency filters, can be handled with the same size fan running at the same speed. In certain cases, a smaller size fan may be selected for a given application.

Requirements for acoustic lining of cabinets is reduced as fan source noise is minimized.

### Outlet Sound Comparison - Size 365 EPFN (9-Blade)

<table>
<thead>
<tr>
<th>APPROX. WOV (%)</th>
<th>CFM</th>
<th>SP (in. w.g.)</th>
<th>FAN</th>
<th>OCTAVE BAND</th>
<th>LwA</th>
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<tr>
<td>90</td>
<td>26789</td>
<td>1.272</td>
<td>EPFN</td>
<td>92</td>
<td>96</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>EPFN w/ Diffuser</td>
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<tr>
<td>75</td>
<td>22400</td>
<td>2.745</td>
<td>EPFN</td>
<td>87</td>
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<td>EPFN w/ Diffuser</td>
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<td>3.853</td>
<td>EPFN</td>
<td>89</td>
<td>88</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>EPFN w/ Diffuser</td>
<td>88</td>
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</tbody>
</table>

**Size 365 EPFN**

1000 RPM  
Density = 0.075 lbm cu.ft.
Diffuser
Fully-galvanized construction features two diffuser sections mounted at the front and back of the fan wheel. Acoustic attenuating material inserted within a solid housing and a perforated frontplate directs airflow across the diffuser reducing fan noise and increasing static efficiency.

Mounting Brackets
Mounting brackets constructed of galvanized steel, mount directly to the E-Series plenum fan framework allowing for ease of installation and compact design.

Availability
The Aero Acoustic Diffuser™ is available on all E-Series plenum fan sizes, both direct drive and belt drive. The compact design maintains all dimensions of the standard E-Series plenum fan and allows options such as a Piezometer Ring and protective enclosures to be utilized. The diffuser is also available as a retrofit kit for existing fans.

E-Series Plenum Fans
E-Series plenum fans offer maximum flexibility to choose the right fan for a given application.

Twin City Fan & Blower’s inlet and outlet sound and air performance ratings for their entire plenum fan line is AMCA certified in two different configurations: one with the bearing in the inlet and one without the bearing in the inlet.

For more information, refer to Fan Engineering Letter 3700: Improvements in Fan Performance Rating Methods and Catalog 470 found on our web site at www.tcf.com.

Aero Acoustic Diffuser™ Awards
2009 AHR Expo Innovation Award Ventilation Division