



An International Pharmaceutical Company

IMI Acoustics Corporation

Exhaust Fan Noise: Neighborhood and facility interior...

Issues:

- Re-tooling of an existing pharmaceutical production laboratory required installation of (5) new vane-axial fans on the rooftop of their facility in New Jersey. These fans ranged in size from 25,000 CFM to 38,000 CFM and from 54 to 60" ID. The acoustical design required treatment both on the discharge side through up-turned exhaust stacks, (neighborhood noise issue) and intake side (for the noise levels in the lab below.)
- The fans had a limited availability for additional system pressures and were sensitive to disruption of laminar airflow at the intake/exhaust faces.
- Existing ductwork limited the length of any proposed silencer unit to no more than 48" while high attenuation requirements for the silencer exceeded 15db at 63hz and 19db at 125 Hz.
- Structural mounting issues were also present. Any proposed silencer would have to be less than 500 lbs each to insure no additional structural modifications of the roof would be needed.

Solution:

- The acoustical consultant called upon their local IMI Acoustics Representative for the correct silencer selection. This firm has had multiple applications with the Oxel® Spiral Silencer line, including several with this same client.
- Custom flange sizes were developed allowing direct connection to the ducts that matched up with the flanges of the fans.

- The Oxel® Silencers provided the ability to couple the units close to the fan faces without disturbing the laminar airflow or adding additional pressure drops. This in turn simplified the installation and allowed the client to use existing exhaust stacks.

Results:

- After installation, the measured noise levels were reduced dramatically below the requirements, both at the property line and inside the facility.
- At the rated 38,000 each silencer contributed less than 0.18" of additional system pressure. The same was true for the smaller units.
- During testing, the project engineer for the client, while on the roof with all units running, said it was so quiet he had to "place his hand on the fans to make sure they were on."

Some of the Advantages of using An Innovative Solution from IMI Acoustics Corporation:

- The high attenuation combined with the low pressure drop that the Oxel® Spiral Silencers provide, meet many requirements that a standard baffle silencer cannot.
- The small weight and sizes of the Oxel® Silencer typically saves project costs for additional structural modifications and support structures normally required with standard baffle silencers
- Energy savings realized by reducing the required motor horsepower for blowers/fans due to the lower static pressures.