DYNAMIC SCRUBBER DUST COLLECTOR

Design Features

- High efficiency of up to 99.5% in the 1 to 5-micron range is achieved through “dynamic” action.
- Tangential entry of the pre-cleaner section provided dust drop-out.
- “Dynamic” scrubbing involves the use of a wet fan to mix gas, dust and water.
- Wet fan is self-cleaning and prime mover of gas.
- Gas capacities of 1 000 to 125 000 Am3/hr.

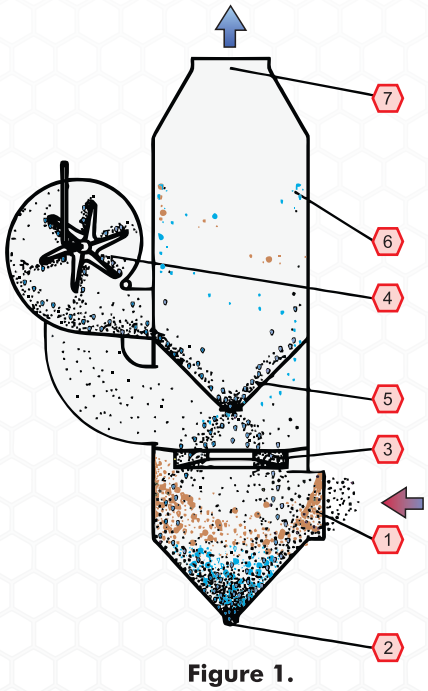

Figure 1.
Dynamic Scrubber Operation

Operation

- Dirty Gas enters the inlet tangentially dropping out heavier dust particles
- Slurry from the upper section wets the scrubbing vane where the second cleaning takes place.
- Partially cleaned gas enters the duct to the fan inlet through a full cone water spray onto the fan.
- Water spray on the eye of the fan washes the impeller and “Dynamic action” attaches dust particles to the water droplets.
- Fan outlet is tangential to scrubber top section, thus separating slurry from cleaned gas.
- The internal cone discharges the slurry onto the top of the scrubber vane.
- Slurry discharge is through the bottom cone.

Legend

1. Bottom Inlet Section
2. Slurry Outlet
3. Impingement Vane
4. Paddle Blade Fan
5. Internal Cone
6. Cyclonic Separator
7. Scrubber Gas Outlet

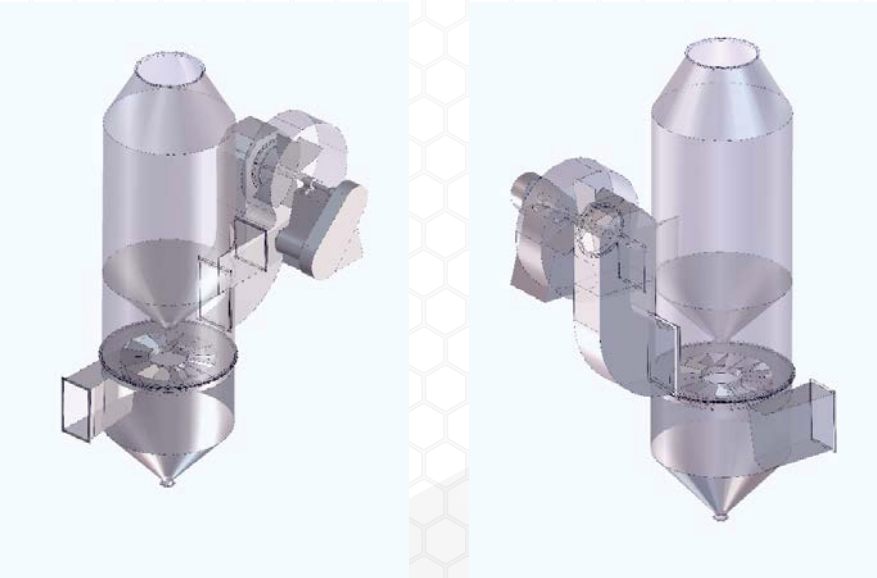

Figure 2. Dynamic Scrubber Exploded view

Benefits

- The paddle bladed fan is sprayed with the scrubbing water, thus prevents build-up and wear.
- Most of the dust is separated in the inlet section and only final cleaning in the fan and separator.
- Prime mover fan is built into the scrubber
- High efficiency with lower pressure-drop due design
- 35 to 40 tph Steam Boiler applications

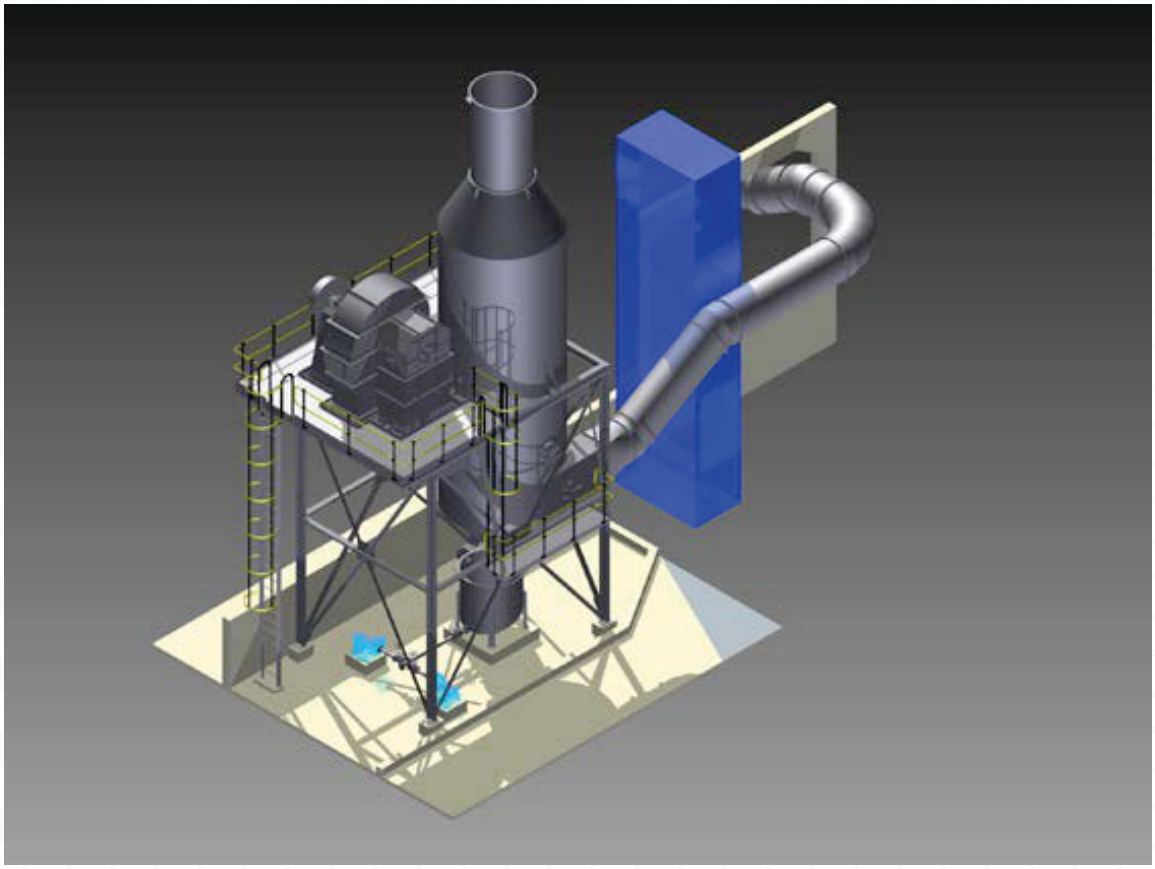

Figure 3. Dynamic Scrubber Arrangement Model

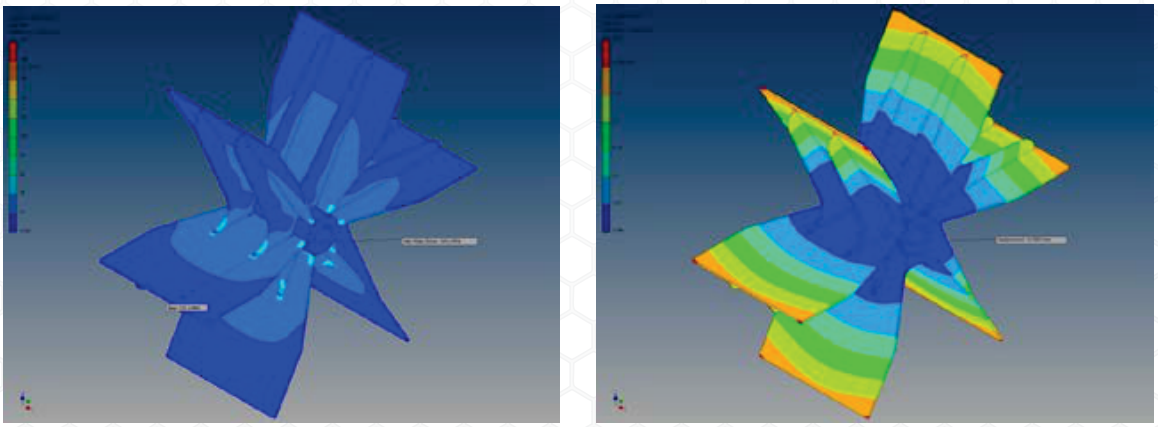

Figure 4. Dynamic Scrubber Fan Engineering