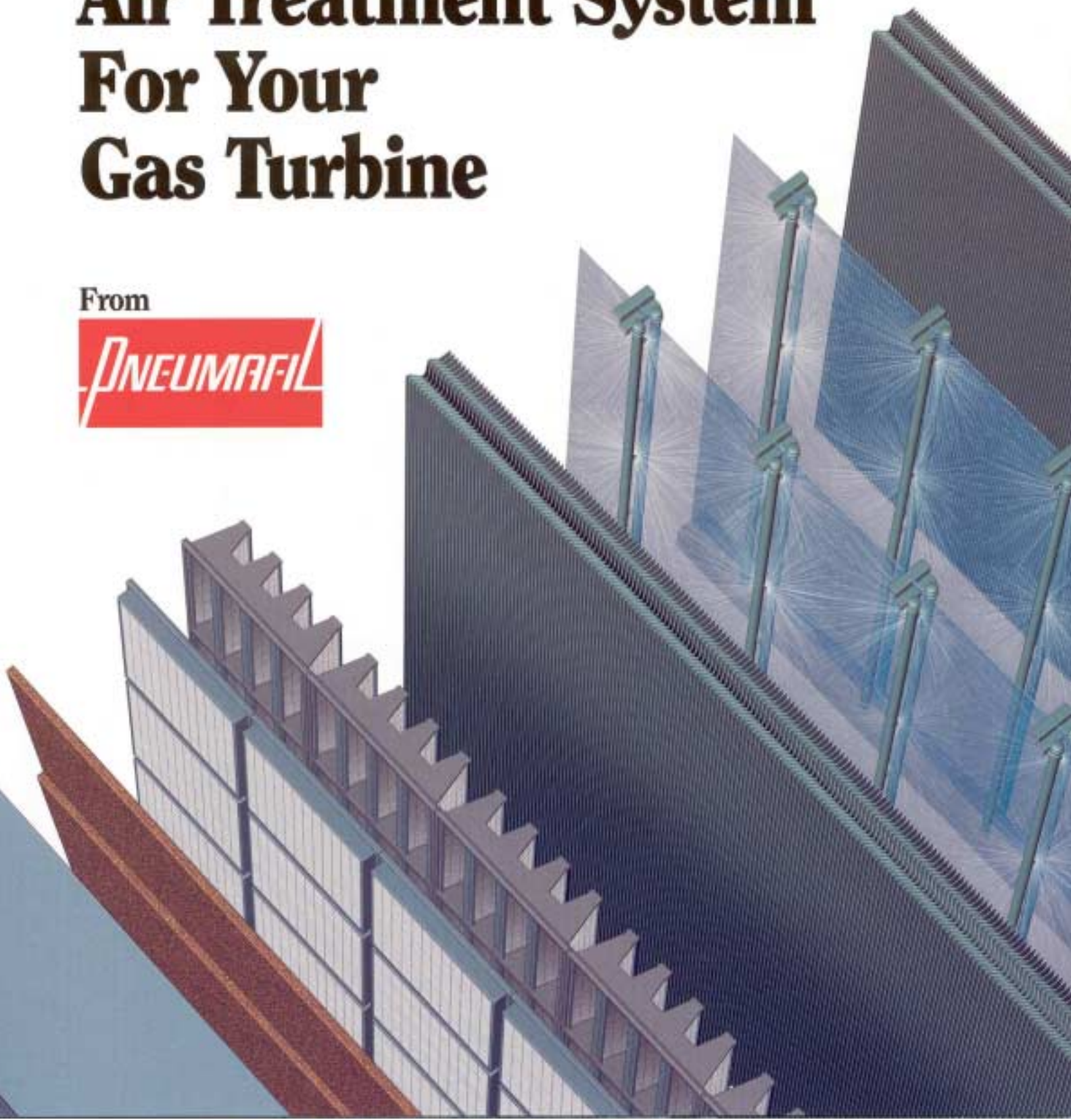


Introducing An Innovative Air Treatment System For Your Gas Turbine

From

PNEUMAFIL



Ultrascrub™

State-of-the-Art Total Air Treatment for Gas Turbines

Ultrascrub is an innovative air intake technology that significantly improves turbine performance while reducing maintenance costs. It uniquely combines very high efficiency DOP filters with a scrubber-cooler to remove particulate in the 0.2–0.4 micron range, as well as chlorides, sulfates, and sodium.

As a result, turbine output degradation is substantially reduced, and the need for intermittent off-line washes is virtually eliminated. In addition, compressor and turbine components experience much lower corrosion and erosion levels and NOx emissions are reduced.

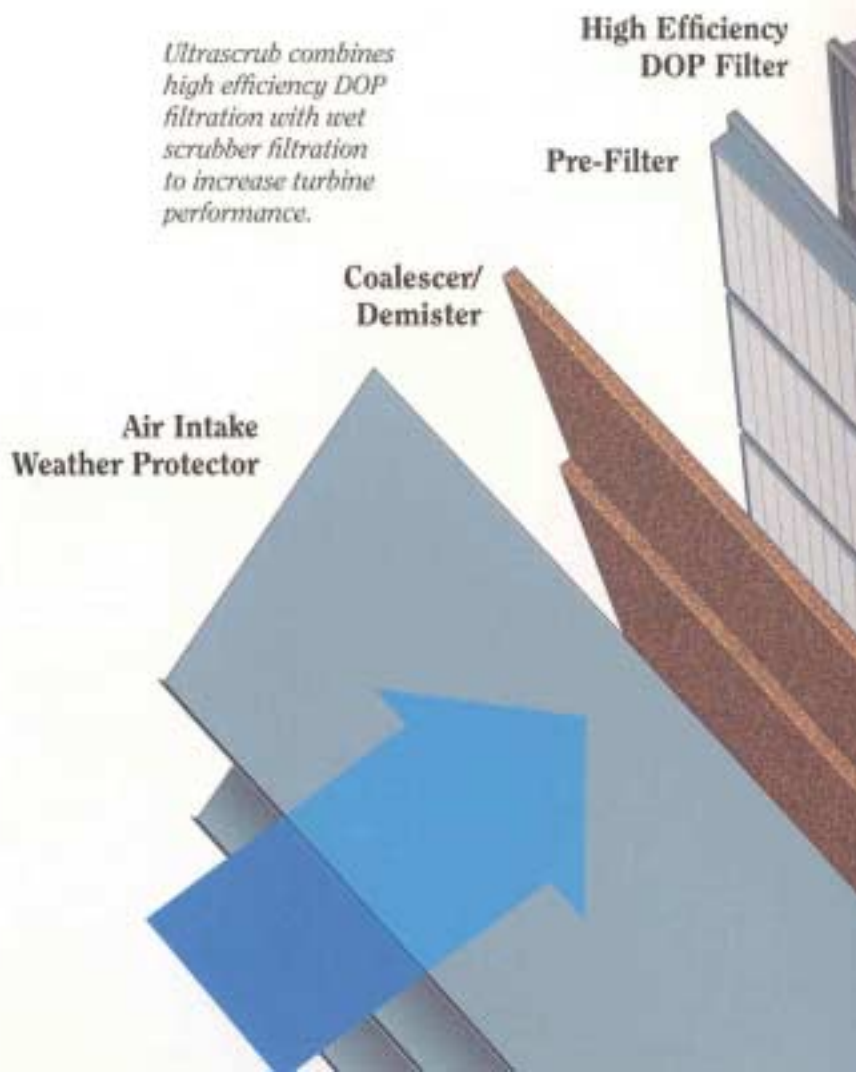
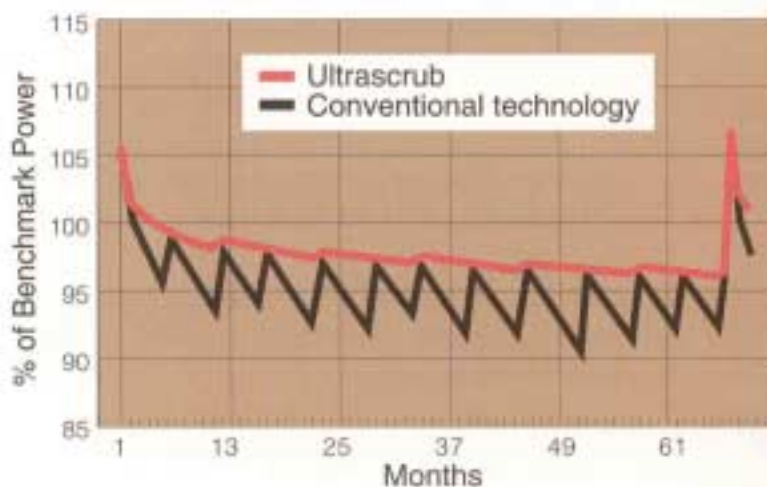
Documented Savings / Payback

Ultrascrub's performance has been proven through extensive field testing* on a 100 MW system in daily operation at The Dow Chemical Company (Freeport, TX) since 1990. Dow calculated annual savings of over \$850,000, compared to conventional technology. Subsequent installations have verified Ultrascrub's ability to substantially improve turbine performance. Depending on your site conditions, fuel prices, etc. payback should occur in one to two years.

Benefits

- Increased dependable output
- Reduced system downtime
- Lower maintenance costs
- Order-of-magnitude reduction in compressor fouling
- Fewer compressor washes
- Reduced NOx emissions
- 1–2 year payback typical
- Increased profitability for the life of the equipment

*Full details of the tests are available

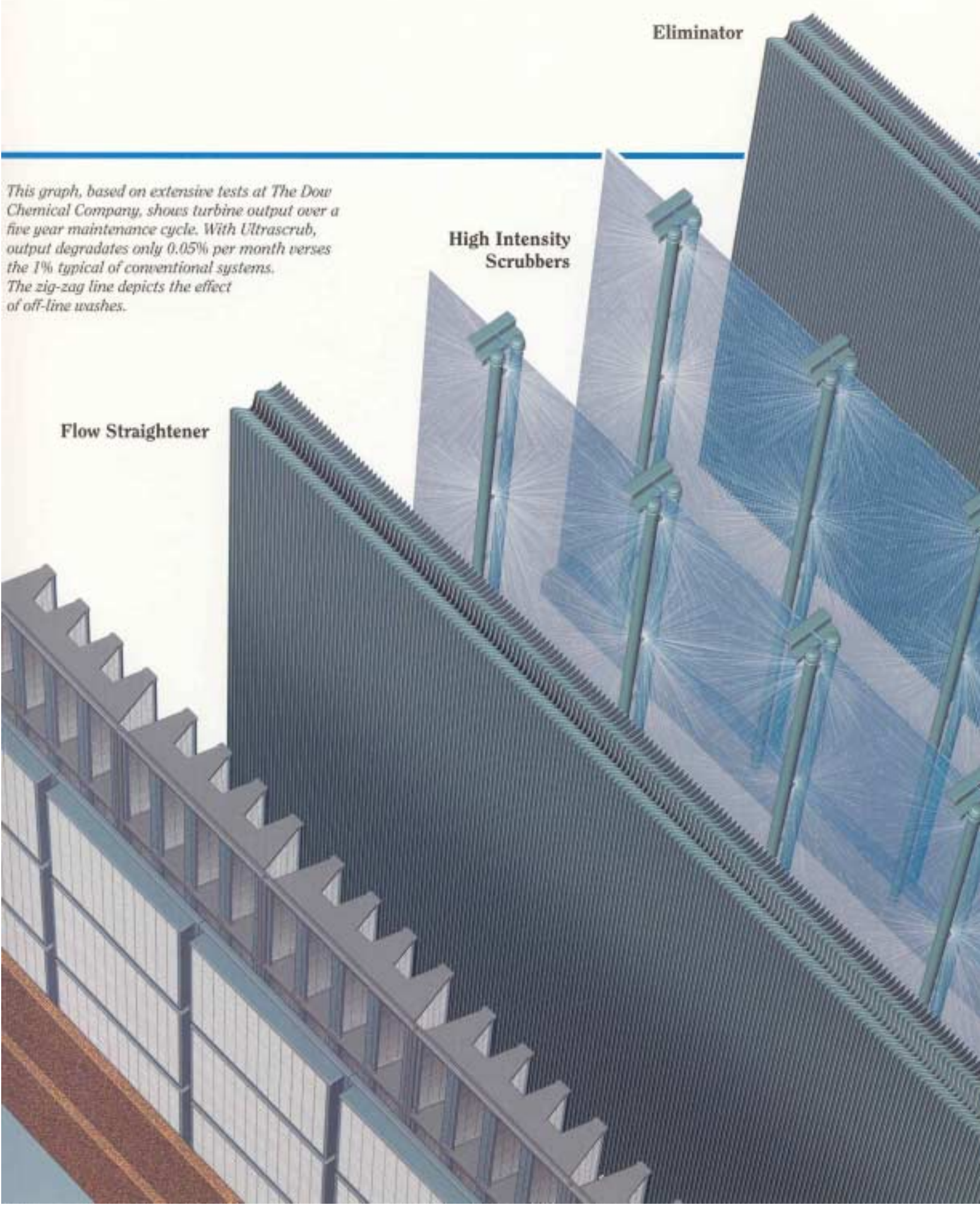


Eliminator

**High Intensity
Scrubbers**

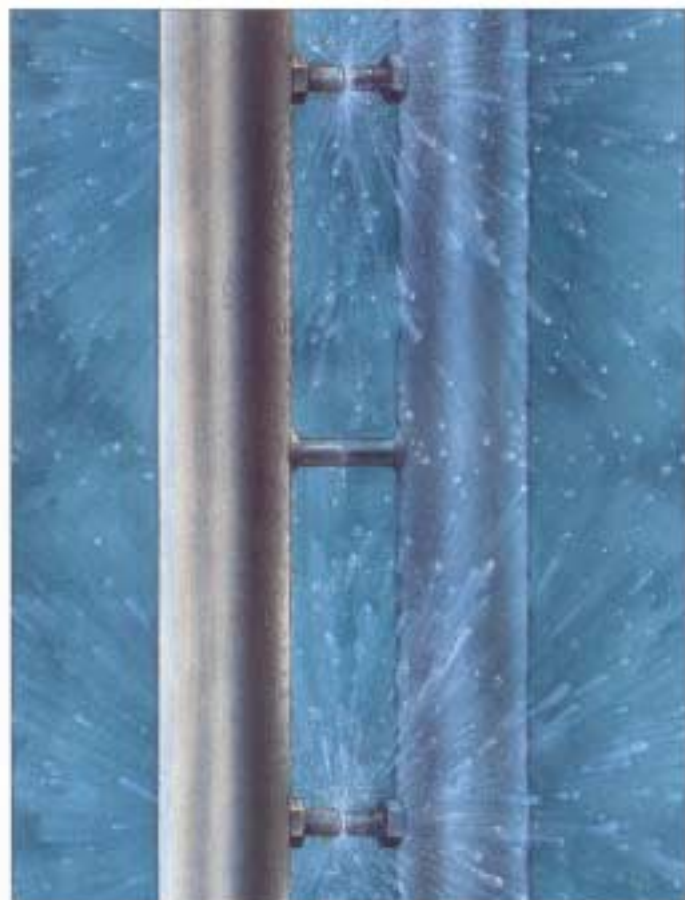
Flow Straightener

This graph, based on extensive tests at The Dow Chemical Company, shows turbine output over a five year maintenance cycle. With Ultrascrub, output degrades only 0.05% per month versus the 1% typical of conventional systems. The zig-zag line depicts the effect of off-line washes.



Unique wet scrubber system

Ultrascrub features Pneumafil's Pneumaspray™ air washer, which achieves higher saturation efficiency while using less water than conventional systems. Available only from Pneumafil, this system is one of the keys to Ultrascrub's superior performance.



Pneumaspray

Retrofits

Pneumafil can also retrofit most existing turbine inlet treatment systems to significantly improve performance and reduce costs. Shown below, a 100 MW turbine is being retrofitted with Ultrascrub. The turbine subsequently showed over \$850,000 in savings annually.



Pneumafil markets Ultrascrub under exclusive rights granted by The Dow Chemical Company. Ultrascrub is protected worldwide under relative Dow patents.



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