

LIGHTNING

AN SPX BRAND

Flue Gas Desulfurization



SPX[®]

LIGHTNIN FGD Experience - We've been there from the beginning.

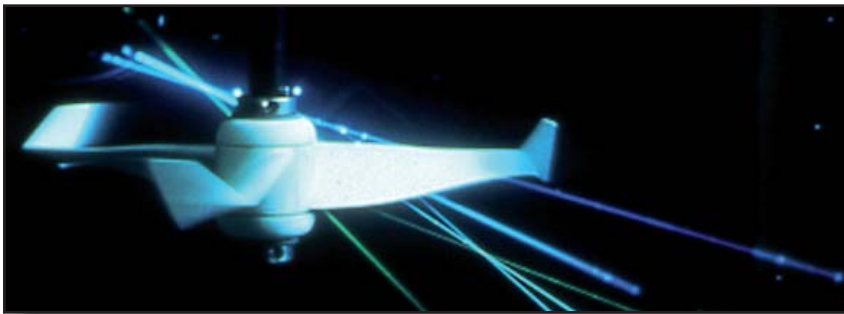
LIGHTNIN has successfully applied hundreds of Top and Side Entry agitators for flue gas desulfurization processes, from the very first FGD installation in the 1960's at the Lawrence Energy Center to today's modern power plants. Since the first installation, the Boiler Systems have advanced considerably from the multiple Absorber Towers per Boiler in the 1970's and 80's to today's systems with a single tower per Boiler, capable of operation for extended periods without shutdown.

At LIGHTNIN, we bring over 80 years of mixing experience to your flue gas desulfurization (FGD) process. We believe that getting the job done right means providing the degree of mixing you need while striking the best balance of capital cost, energy consumption, and reliability.

Like your FGD process, your mixing equipment is an investment for the future. You can count on LIGHTNIN to be there with years of rugged, dependable service.

Our Mixing Research, Testing and Scale-Up Capabilities are Second To None

Modern Testing Computational Fluid Dynamics: A Precise, Comprehensive Look At Your Mixing Process



The LIGHTNIN Research & Development laboratory is fully equipped to model test any mixing portion of the FGD process. All FGD unit operations, from liquid-solid (solids suspension and re-suspension) to gas-liquid-solid (gas dispersion and mass transfer), can be analyzed to evaluate agitator performance.

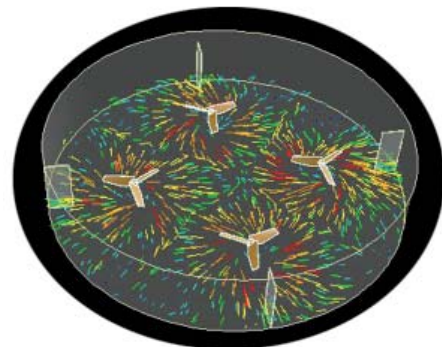
Lasers Design the Most Efficient Impellers

The process capabilities and mechanical requirements of an agitator depend on the design of the impeller. Our computerized laser Doppler velocimeter laboratory allows us to measure, with pinpoint accuracy, a given impeller's mixing performance. It provides simultaneous measurement of power consumption, flow and shear characteristics, and the mechanical loads generated.

The laser lab is also used to design impellers for specific process operations - from high flow designs for solids suspension and blending, to high solidity designs for gas handling and mass transfer.

A Computational Fluid Dynamics (CFD) modeling program is used to analyze agitator performance in the full-scale installation.

The CFD software program models the combined dynamic effects of the agitator design, vessel geometry, pump inlets, and suction and slurry characteristics.



Testing Scale-Up (And Scale-Down)



Correlating a small-scale mixing system to a large system is a complicated procedure. From LIGHTNIN's years of mixing experience, we're well prepared to scale up, or scale down, accurately.

Adding gas to a slurry not only complicates the process requirements of an agitator, it complicates the scaling procedure as well.

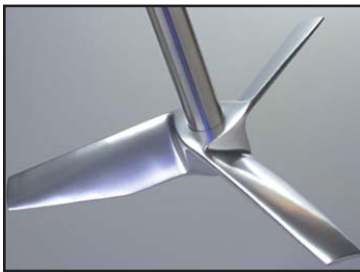
At LIGHTNIN, we can scale gas dispersion or mass transfer applications- both to evaluate full-scale performance and to determine how to improve your particular FGD forced oxidation process.

Our patented equipment designs put a whole new spin on mixing efficiency.

The LIGHTNIN A510/A310 Impeller Cuts Power Consumption By Up to 50%

From LIGHTNIN's laser lab came the A510/A310 family of impellers-high-efficiency designs that handle all requirements of the FGD process. For solids suspension, the A510/A310, and its side-entry version, the A312, are specifically designed to generate high flow per power.

The A510 impeller system, with its varying angle options, can optimize processes by changing its shear characteristics or impeller/tank diameter ratio.



In fact, the A510/A310/A312 impeller designs cut power consumption when compared to traditional pitched-blade turbines and propellers.

These high-efficiency impellers generate a near-constant flow velocity (and therefore low shear) across the swept diameter.

This optimum blade design also eliminates the formation of the undesirable eddy currents on the trailing surface of the blade. In the case of abrasive FGD slurries, these currents will erode metal and rubber coated impeller surfaces.

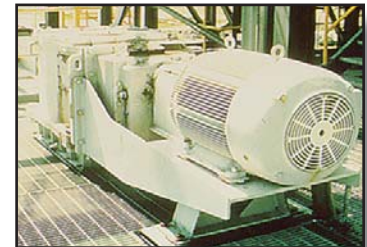
See B-922 for more details on the VSF Side Entry Mixer

For Rugged, Reliable Service, LIGHTNIN Mixers Clean Up.

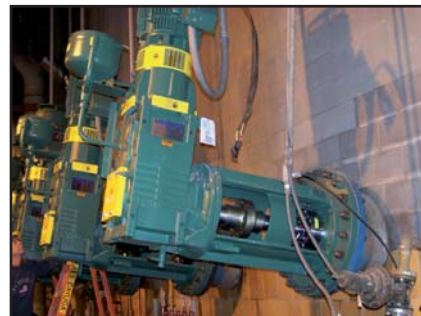
LIGHTNIN mixer set industry standards for performance and durability. Our integrated mixer design means that shaft systems and impellers are accurately matched to provide years of dependable operation. We also manufacture our own speed reducers developed specifically for industrial mixer service.

LIGHTNIN "Workhorse" Series 70/700 Mixers

Deliver up to 1250 hp/932 KW. These mixers are built to handle the severe duty of solids suspension and re-suspension, blending and gas dispersion.



The LIGHTNIN VSF Side-Entering Mixer with A312 Impeller



Designed to satisfy the high reliability and low maintenance requirements of FGD service.

Expert Sales and Service Is Available Around The World



The worldwide LIGHTNIN organization stands ready to spec, quote, and service all your mixers applications in flue gas desulfurization. On a global basis, strategically located LIGHTNIN manufacturing and service facilities make equipment delivery and after-order service fast and dependable. Our dedicated global service teams are readily available to support your process equipment. Genuine spare parts and service solutions can be obtained from locations around the world and ensure operating capacity of your valuable production equipment.

Service

SPX Process Equipment Services

- Repair Services
- Equipment Services
- PM/PDM Services
- Additional Services
 - Installation and Startup
 - Maintenance and Repair
 - Asset Management

For 24-hour response, call 1-888-MIX-BEST
(U.S. and Canada)

Call the SPX Process Equipment Experts

For more information about LIGHTNIN FGD or to discuss your application, contact your local SPX Process Equipment Sales Representative. Or visit our website at www.spxpe.com.

Or call 1-888-MIX-BEST (U.S. and Canada)

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PROCESS EQUIPMENT

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For more information about our worldwide locations, approvals, certifications, and local representatives, please visit www.spxpe.com.

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