Elessent™
MECS® TECHNOLOGIES

MECS® DYNAWAVE® REVERSE JET SCRUBBER

THE OPTIMUM SOLUTION FOR CEMENT PLANT AIR POLLUTION CONTROL

Cement plant applications are erosive, tough applications that can severely erode equipment not properly designed with this environment in mind. Air pollution control in a cement plant is no different, and careful selection of technology, designed specifically with cement plants in mind, is the path to reduced maintenance and worry-free operation.

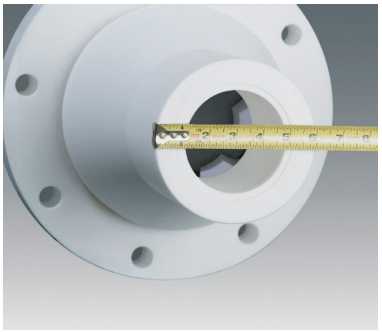
SMALL FOOTPRINT/ LOW CAPITAL COSTS

The cement kiln gas stream is hot and contains SO_2, HCl and particulate. The DynaWave® technology quenches the gas and removes acid gases and particulate all in one vessel, saving footprint and capital costs.

EROSION-RESISTANT NOZZLES

DynaWave® technology offers cement plants proven performance in this difficult application. For example, a conventional spray tower scrubber uses hundreds of small nozzles that are prone to wear and pluggage.

The DynaWave® reverse jet scrubber functions with very few open-bore nozzles made of erosion-resistant silicon carbide material. Nozzles installed in a cement plant application have functioned over 12 years without replacement.



Reverse Jet Nozzle

FEATURES AND BENEFITS

PROVEN PERFORMANCE

- SO_2 and HCl emissions effectively and significantly reduced
- Particulate removal achieved in same vessel
- Ability to handle multiple gas sources in one vessel

VARIETY OF INEXPENSIVE REAGENTS

- CKD, limestone or lime – experience with all three reagents

LOWER OPERATING COSTS

- Lower pump head and flow
- No liquid effluent
- Gypsum produced can be recycled to finish mill

LESS MAINTENANCE

- Virtually plug-free, large open bore reverse jet nozzles
- Erosion-resistant silicon carbide nozzle material
- Very few nozzles compared to hundreds of nozzles in spray tower technology

HIGH ON-STREAM RELIABILITY

- Slurry system design based on cement industry experience
- Extensive global experience in the cement industry
- Simple operation with minimal controls
- Ability to automatically adjust to process excursions

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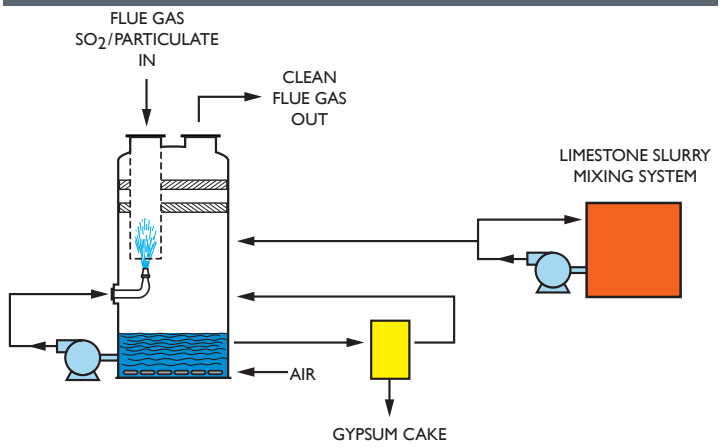
MECS® DYNAWAVE® REVERSE JET SCRUBBER

DYNAWAVE® LIMESTONE SYSTEM



SLURRY APPLICATIONS/ FILTRATE RECYCLE

The DynaWave® recirculation loop can handle higher solids in the liquid stream than other scrubber technologies. This is because of the large-bore nozzle as well as MECS®, Inc. (MECS®) experience with designing slurry systems to handle cement kiln dust, silica, quartz and other erosive components typical for cement applications.

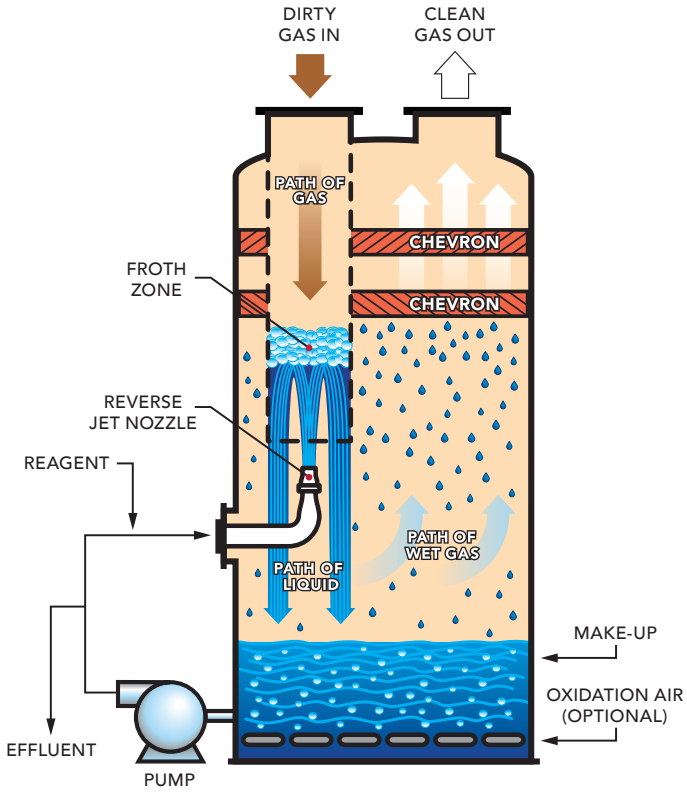
For the cement plant, this translates into less blowdown and the ability to recycle filtrate to the DynaWave® scrubber to be used as make-up water. Gypsum produced via in-situ oxidation can be reused in the cement process. Filtrate recycle and gypsum reuse mean that DynaWave® technology can offer an effluent-free system.

PROVEN PERFORMANCE

- Over 400 wet scrubbing systems installed worldwide
- Flow rates from *1'200 to over 2'000'000 Nm3/h*
- Proven SO2, HCl and particulate removal
- Designed to handle inlet temperatures up to 1'200˚ C

HOW A REVERSE JET SCRUBBER WORKS

The DynaWave® reverse jet scrubber is an open duct in which scrubbing liquid is injected through a non-restrictive reverse jet nozzle, countercurrent to the dirty inlet gas. Liquid collides with down-flowing gas to create the "Froth Zone," a region of extreme turbulence with a high rate of mass transfer. The clean water-saturated gas continues through the scrubber vessel to mist removal devices. The liquid reverses direction and returns to the vessel sump for recycle back to the reverse jet nozzle.



SEE HOW IT WORKS

View a QuickTime® video on the MECS® website at: www.youtube.com/watch?v=tv1oVNGYiyY

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