EDV® WET SCRUBBING SYSTEMS

Reduction of Particulates  
SO$_2$, SO$_3$, and NO$_X$

BELCO®
Belco Technologies Corporation
EDV® Wet Scrubbing operates on the principles of saturation, absorption, condensation, and filtration. Specialized vessels and spray nozzles are used to control a variety of pollutants with system configured for each application’s requirements.

Longer operating campaigns and little regulatory tolerance for emissions excursions mean today’s petroleum refining processes demand more than traditional emission control technologies can deliver. The BELCO® EDV® Wet Scrubbing technologies bring well proven refinery performance to every application. In widespread use for controlling FCCU emissions during multiple year operating campaigns, EDV® Wet Scrubbing systems operate without outage requirements or emission excursions. EDV® Wet Scrubbing systems are in use worldwide controlling flue gas emissions from FCCUs, refinery incinerators, fired heaters, boilers, and other industrial applications.

Wet Scrubbing uses liquid contact with flue gas to remove acid gases, particulate and other pollutants. Proprietary technologies and the level of performance achieved set EDV® Wet Scrubbing apart from any competition. Traditional wet scrubbing processes generate fine mist as the liquid-to-gas contact needed for efficient collection performance. It is this mist generation and collection that creates major reliability problems with traditional wet scrubbers. High efficiency mist eliminators must be used to collect mist containing captured pollutants. Solids and salts quickly build-up on mist eliminator surfaces, leading to plugging and maintenance problems. FCCU process upsets are particularly difficult to handle. Not so when using EDV® Technology.

EDV® Wet Scrubbing avoids any mist formation, meaning no mist eliminator problems. Proprietary spray nozzles and low gas pressure drop vessels use size-controlled liquid droplets for effective gas contact. Simple cyclonic separation easily removes any excess water from the gas. Vessels, nozzles and droplet separators are open and extremely durable, supporting continuous operation for multiple years without outages for service work. EDV® Wet Scrubbing provides what traditional wet scrubbers on FCCU and other refinery applications just cannot deliver.
Cyclolabs
Cyclonic separation removes any water droplet carry over in a set of parallel flow separators. Static vanes spin the gas, forcing droplets to collect on the wall and drain from the system. Cleaned, droplet-free gas is discharged from the system without the problems of high efficiency mist eliminators.

Filtering Modules
Within a set of parallel modules, a particulate growth process and water spray filtration remove fine particle and mist. Saturated gas is accelerated then expanded adiabatically, forcing condensation of water vapor. Fine particulate in the gas act as nuclei for the condensing water. The particulate increase significantly in size and mass. Agglomeration during expansion brings about additional particulate growth. An intense sprayed water curtain collects the enlarged particulate at the outlet of each module. Condensation uniformly washes surfaces. Captured particulate and water drain to a recycle tank. Specialized F® spray nozzles used in each module operate for years without plugging or wear problems.

Spray Tower
Hot dirty gas enters the system. A series of intense water spray curtains provide effective saturation, large particulate removal, and acid gas absorption. Each spray level removes more and more pollutants in a staged approach, while providing sufficient liquid-to-gas contact capacity to handle upset conditions. Surfaces are uniformly washed, avoiding build-ups as water drains to an integral recycle tank. Captured pollutants are discharged as a concentrated purge stream for treatment. Specialized G® spray nozzles in the tower operate for years without plugging or wear problems.

Reagent and Purge Treatment Systems
Various neutralization reagents (lime, caustic, etc.) as well as the BELCO® regenerative LABSORB® process are available for acid gas control. Reagent preparation and purged scrubber water treatment are provided to meet the application requirements. EDV® Wet Scrubbing systems can also be configured for control of NOx, dioxins/furans, mercury and heavy metals emissions.
BELCO® offers a complete range of gas cleaning technologies for today’s refinery applications.

Our technologies include:

• EDV® Wet Scrubbing Systems
• LABSORB™ Regenerative SO₂ Scrubbing Systems
• Seawater Scrubbing Systems
• LoTOx™ NOₓ Reduction Technology
• Shell Global Solutions Third (TSS) and Fourth (FSS) Stage Separators
• BELCO® Marine Exhaust Gas Scrubbing Systems

Let us tell you more about our EDV® Wet Scrubbing Systems and our complete gas cleaning capabilities.

Worldwide DuPont Sales and Support

For additional information contact:

Belco Technologies Corporation
9 Entin Road – Parsippany, NJ 07054 USA

Phone: +1 973-884-4700
Fax: +1 973-884-4775
E-mail: info@belcotech.com

www.belcotech.com