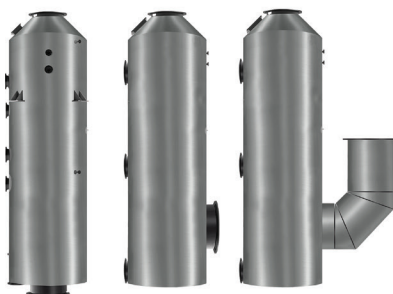


THE EMISSIONS SOLUTION

CROE EXHAUST GAS CLEANING SYSTEMS



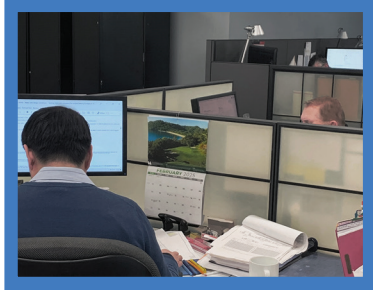
**SUPPORTED BY A
FULL-SERVICE TEAM**



OF TRAINED PROFESSIONALS, DEDICATED TO GIVING YOUR
SHIP'S SCRUBBERS THE BEST SERVICE IN THE INDUSTRY.

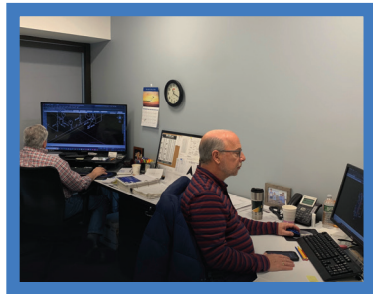
Want peace of mind? Ask about our **CROE SERVICE AGREEMENT**. Email: service@croceanx.com

MEET THE 0.1% AND 0.5% SULFUR EQUIVALENCY COMPLIANCE REQUIREMENTS FOR ECAs IN THE MEDITERRANEAN SEA, THE NORTH SEA, AND NORTH AMERICA WITHOUT PAYING PREMIUM PRICES OF LOW SULFUR FUELS. BE CO₂ READY!



MARPOL ANNEX VI stringent, regulations for vessels operating in the Emission Control Areas (ECAs) in North America and North Sea / Baltic present formidable challenges for ship owners who now face higher prices, low availability and operating difficulties.

As of 1 May 2025, the Mediterranean Sea will become an Emission Control Area (ECA) for sulphur oxides (SO_x) under **MARPOL Annex VI Regulation 14**. This seeks to significantly reduce diesel fuel emissions in the Mediterranean Sea and coastal nations which are detrimental to human health and the environment.



Ship owners, however, enjoy an alternative path to compliance by using the CROE exhaust gas cleaning scrubbers. **CR OCEAN ENGINEERING's EXHAUST GAS CLEANING SYSTEMS** do the job, providing an assurance of meeting the 0.1% or 0.5% sulfur fuel equivalency when burning high-sulfur fuels. This means you will be fully compliant at a fraction of the cost.

IDEAL FOR CRUISE SHIPS, FERRIES, BULK CARRIERS, CONTAINER SHIPS, RORO AND OTHERS FOR RETROFIT AND NEW BUILD SHIPS.



THREE STANDARD DESIGNS. FOR SINGLE ENGINE OR FOR MULTIPLE

CR OCEAN ENGINEERING SCRUBBERS OFFER THE FOLLOWING FEATURES AT COMPETITIVE PRICES:

- ❑ **Designed as CO₂ capture ready**
- ❑ **Bottom entry or side entry designs** to allow a direct up-flow configuration and simplify engine exhaust gas duct routing for any type of vessel.
- ❑ All CROE designs can **operate with or without bypass**.
- ❑ **Strategically configured exhaust gas inlet and scrubber drainage** to eliminate any potential water backflow to the engine.
- ❑ Eliminated circulation water storage from bottom of scrubber vessel to a separate tank at a lower elevation to reduce weight at the higher elevations, improving stability.
- ❑ **Metallic construction** (external and internal) to extend the life of the system and allow the exhaust gas to flow through the scrubber system in dry conditions, without a bypass in areas of the world where scrubbing is not yet needed.
- ❑ Used **proprietary internals** designed specifically to increase contact area with lower liquid flows to save on typical pumping costs associated with some scrubber designs.
- ❑ **Proprietary Caustic-Assist™** feature for Open-Loop Assist operating in low-alkalinity areas.



THREE STANDARD DESIGNS FOR SINGLE ENGINE OR FOR MULTI-STREAMING OPERATIONS. RETROFITS OR NEW BUILD SHIPS.

The CROcean Engineering ship exhaust gas cleaning technology is available in three standard configurations, customizable to a ship's requirements:

- ▶ **OPEN-LOOP:** once through scrubber using seawater
- ▶ **CLOSED-LOOP:** a recirculating scrubber using freshwater with caustic
- ▶ **HYBRID:** a combination of both designs for maximum flexibility

CROcean[®]
Engineering

CROE MEETS ALL YOUR MARITIME EMISSIONS CHALLENGES.

At CROE, we don't just build scrubbers—we ensure they keep running at peak performance. Every CROE scrubber is custom-designed to meet your ship's MARPOL compliance requirements and backed by the **CROE SERVICE AGREEMENT**, a dedicated team that knows your scrubber inside and out.

Over the many installations in operation, the CROE design has proven very reliable and effective for all clients. In addition to the scrubbing equipment, CROE also provides spare parts, state of the art On-Board Service as well as term contracts for the Remote Monitoring and Updating of the scrubber operation to insure optimum performance of the system at all times. This service and option is available for all CROE scrubbers as well as any other maker's scrubbers.



- ▶ Spare Parts for all of the CROE Scrubbers
- ▶ Maintenance for all makes of Scrubbers
- ▶ On-Board Service for CROE and other Scrubbers
- ▶ Remote Monitoring and Updating for Continued Optimal Performance of CROE Scrubbers
- ▶ CO₂ Ready Exhaust Gas Scrubbing Systems
- ▶ CO₂ Reduction Technologies

WE HAVE A GLOBAL PRESENCE TO SERVICE ALL TYPES & MAKES OF SCRUBBERS. CALL OR WRITE TO US!

Visit us at: www.croceanx.com
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