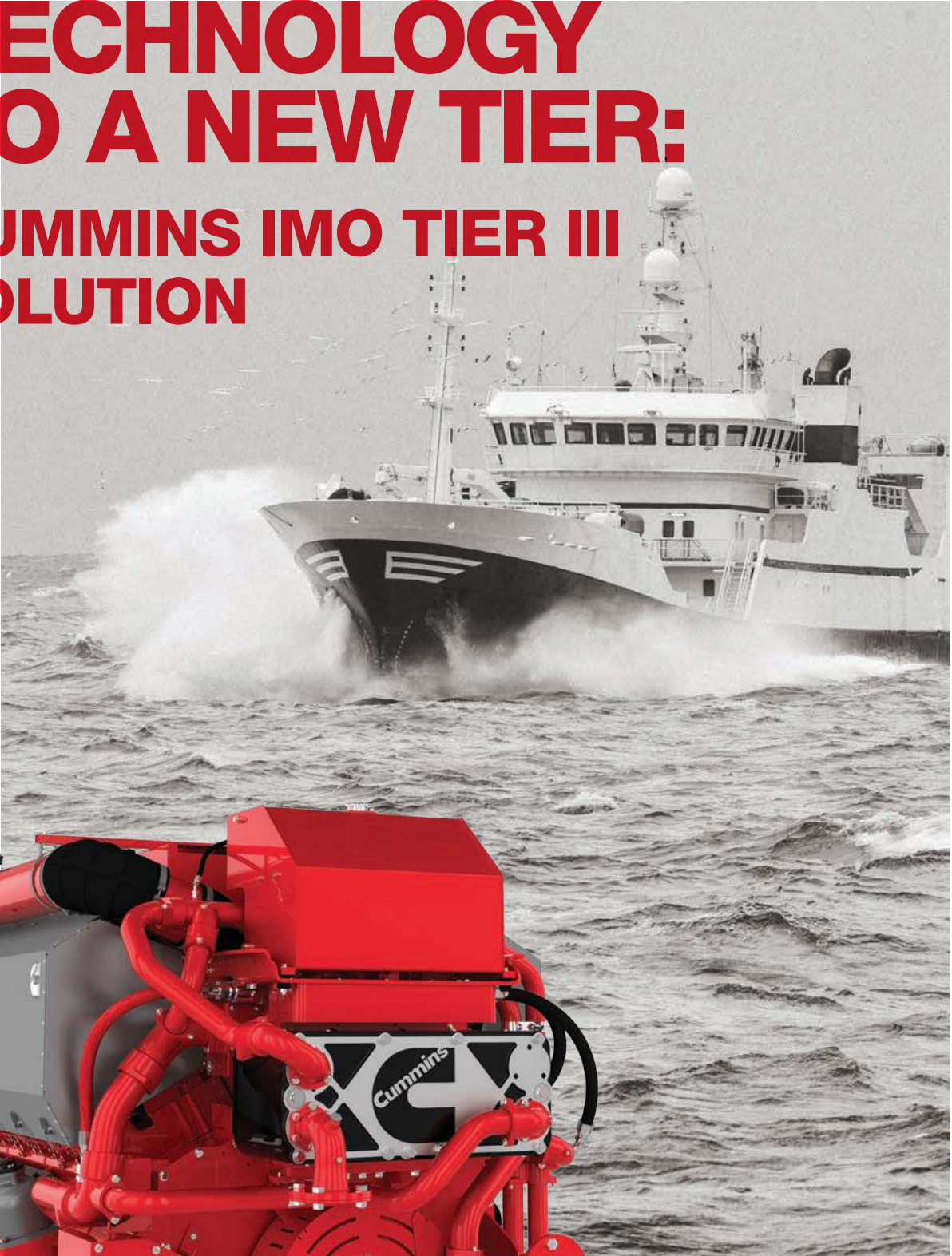


TAKING PROVEN TECHNOLOGY TO A NEW TIER:

CUMMINS IMO TIER III SOLUTION



ALWAYS ON

WHERE EXPERTISE MEETS EXPERIENCE.

No one has greater depth of knowledge about meeting emissions challenges than Cummins. We've been doing it for decades in almost every industry and with every type of equipment on earth. Cummins sets the bar through its combination of emissions technology experience and an immense commitment to diesel emissions R&D. We look at each situation from a full 360 degrees, examining all options and considering how they best meet the needs of each unique application. In the case of IMO Tier III regulations, we have optimized our solution for reliability and dependability while providing flexibility that minimizes DEF usage.



ONE SOLUTION FITS ALL.

Regulatory emissions standards vary from region to region, a challenge for engine manufacturers, ship builders and their customers. As a result, manufacturers are forced to decide between reinventing the wheel (making wholesale engineering and manufacturing changes) in order to meet IMO III standards or making modifications to proven technology in order to meet new regulations.

Cummins is taking their proven dual-tier approach used for IMO II engine technology, adding a proven SCR catalyst and giving customers the flexibility to run at IMO III regulated levels when necessary and IMO II levels when permitted. Operators will even have the ability to switch between IMO II and III mid-journey. The ability to "pause" SCR functions minimizes DEF use and the associated costs while maintaining the high level of fuel efficiency that Cummins QSK19, QSK38, QSK50 and QSK60 engines are known to deliver.

Utilizing existing engine and aftertreatment technology provides the utmost reliability while minimizing downtime at a much lower initial cost than competitive solutions. But the benefits of relying on Cummins go much deeper than that.



KEY BENEFITS

■ 32.5% OR 40% DEF

Cummins IMO III engines are set to run on 32.5% concentration of urea – but if storage space is a concern and the operator wants to use a 40% concentration, they can do so at the flip of a switch.

■ HIGHER SULPHUR TOLERANCE

The aftertreatment system used with Cummins high-horsepower marine engines doesn't require low-sulphur fuel. IMO III enforces 1,000 ppm or less, but Cummins solution can run on higher sulfur content fuel when in non-regulated waters.

■ LOWER DEF CONSUMPTION

The DEF injection unit uses less DEF than competitive SCR units, utilizing pressurized air to atomize the urea for better mixing and a more complete chemical reaction.

■ KEEPING IDLE UP TO SPEED

Long idle times can cause temperatures that are too low for efficient conversion of NOx. Cummins solution includes an engine idle counter that displays a warning so that engine load can be increased to initiate controlled clean-off of accumulated carbons.



MULTIPLE CONFIGURATIONS FOR EASIER INSTALLATION.

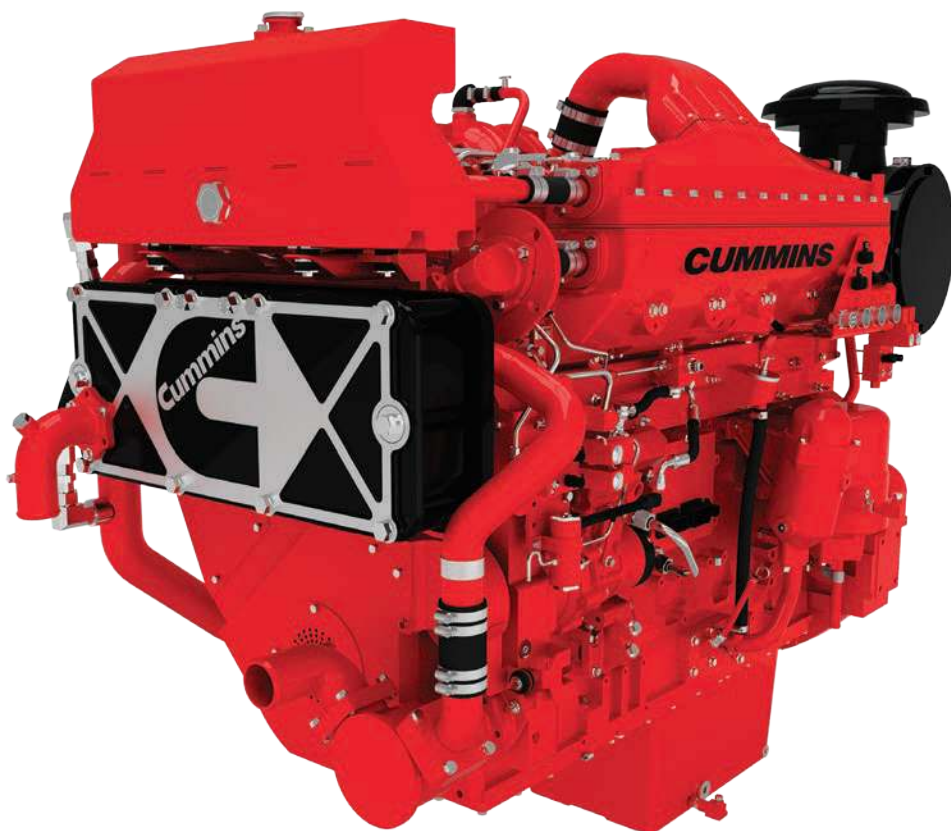
The aftertreatment system used with these engines has multiple SCR housing configuration options, so it can be positioned to fit the space and provide technicians with ready access to the service panel.

PERFORMANCE ON DISPLAY.

As the manufacturer of record, Cummins has the responsibility to deliver a certified system that meets IMO III regulatory requirements. Your Cummins engine and aftertreatment system are integrated, controlled and monitored through an electronic interface which displays system out NOx and NOx conversion efficiency on a monitor for your captain to review and for surveyors to examine on your vessel, making this as quick and painless as possible.

PROPULSION AND AUXILIARY POWER.

Life is simpler when you can get all your power needs from a single source. Cummins offers a full range of solutions for both propulsion and auxiliary application needs on your vessels.

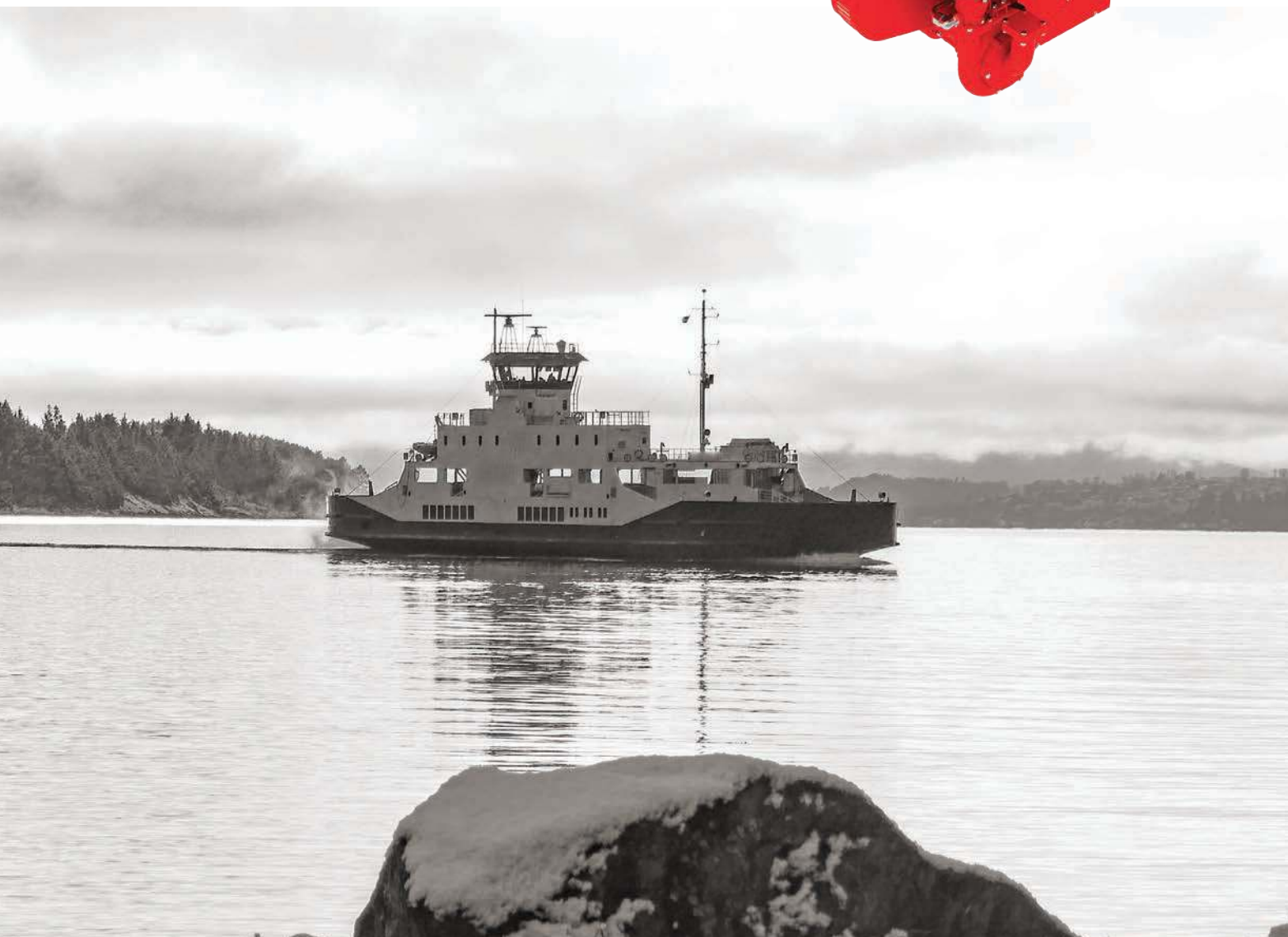
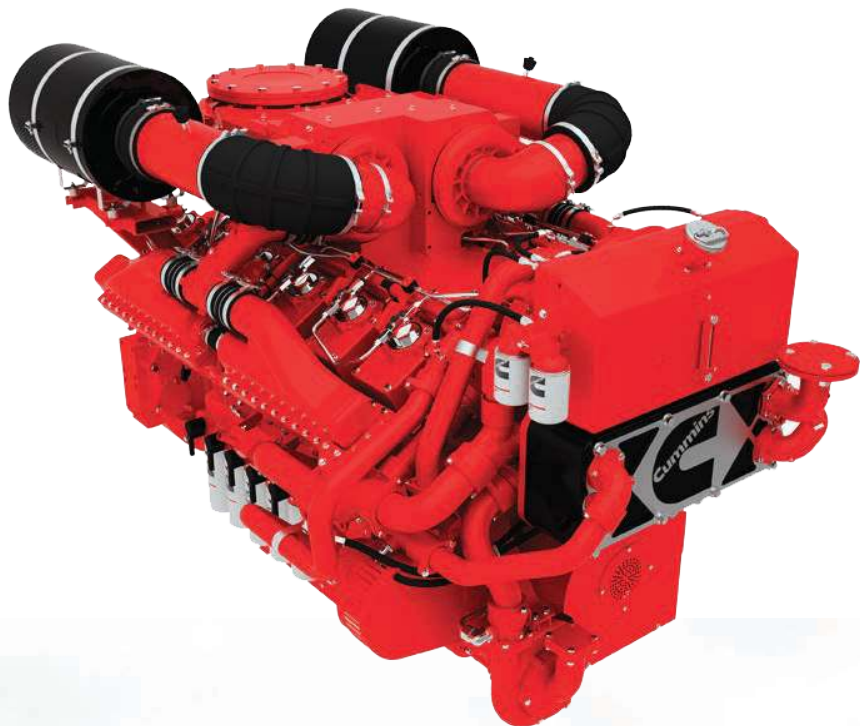


FIRST FIT OR RETROFIT.

Lowering NOx emissions is more than just an environmental issue. It bolsters the image of marine customers as “green” firms, concerned with protecting air quality for future generations. Because of how Cummins solution has been designed, vessels using Cummins IMO II QSK19, QSK38, QSK50 and QSK60 engines can be easily retrofitted to achieve 2g/kW NOx output levels.

SERVICING AT SEA.

The Cummins SCR aftertreatment system has a modular design with multiple “bricks” that can be swapped out on an individual basis. A single onboard maintenance tech can easily gain access by taking a few bolts out of the panel, versus having to replace the whole box. It’s a time-efficient and cost-efficient approach that simply makes more sense. The Cummins system requires no special oils, and maintenance intervals are set so that necessary work can be done in a single service event using standard service tools and procedures.



SUPPORT IN EVERY PORT.

One of the great advantages of choosing Cummins marine engines is our global service and support network, which is unmatched in the industry. Factory-trained technicians and Genuine Cummins new and ReCon® parts are readily available in every major port everywhere around the globe.

CONFIDENCE IN WRITING.

Engines and aftertreatment systems carry a full warranty backed by the strength of the Cummins service and support network. It covers your vessel for up to the life-to-overhaul of your engine depending on duty cycle.

RANGE OF RATINGS.

The Cummins QSK50 and QSK60 have been certified at a range of ratings. The QSK19 and QSK38 are in final testing and certification, which will be completed before the end of 2020. An updated list of ratings will be posted at cummins.tech/imo.

CUMMINS MARINE. ALWAYS ON.

One of the earliest uses for a Cummins diesel engine was on a shrimp boat nearly 100 years ago. Our dedication to this industry and our understanding of the unique challenges of commercial, military and recreational vessels continue to this day as we meet the challenge of today's emissions environment with innovative dual-tier technology. It's an all-world solution backed by world-class support, a combination that is designed for an industry that's Always On. To learn more visit cummins.tech/imo.



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