

The first Cool Flame EGR system is currently being installed on the ferry MF Selje owned by Norwegian Fjord 1.



Technical verifications:

See report from Marintek's testing on Rolls Royce ships engine January 2010 (www.coolflame.no)

cool flame technologies

Martin Linges vei 15
1367 Snarøya, Norway

Tel: +47 90158040
www.coolflame.no

COOL FLAME

– State of the art NO_x reduction technology

A brand new system for reducing NO_x emissions from ships engines is now launched. The patented cool flame technology is being used in combination with exhaust gas recirculation (EGR)

Marintek has recently tested the efficiency of the new technology on a Rolls Royce ship engine:

High efficiency on variable loads: More than 50 % reduction of NO_x within 25 – 100 % load range

The technology works with Marine gas oil and other heavy oils.

More information

Cool Flame is a patented technology invented in Germany. The cool flame EGR system is more efficient, smaller and lighter compared to current systems. There is no need for additional infrastructure and maintenance is very limited.

Cool Flame may be installed without docking and is feasible for both new ships and retrofitting.

Commercial sales are ongoing. Norwegian ship owners may recover up to 80 % of investment cost refunded by the NOx-fund.

The first cool flame EGR system is currently being installed on the ferry MF Selje owned by Norwegian Fjord 1. Based on a technology recommendation by Det Norske Veritas (DNV), the Norwegian NOx fund financially supports the pilot project.

DESCRIPTION OF TECHNOLOGY

EGR is a technology for reduction of NOx from combustion engines. This technology has been in use by the automotive industry for many years. Previously EGR could not be used directly in a ship engine due to impurities and sulfur in the marine oils being used. These impurities result in higher quantities of particles and soot in the exhaust compared to emissions from car engines. Particle filters are used to protect the engine when returning exhaust back to the air intake. To allow for continued use the filters must be frequently regenerated.

Conventional regeneration using high temperatures (> 600 degrees C) will destroy the filter as accumulated materials will melt on the filter surface.

The Norwegian company Cool Flame Technologies (CFT) has successfully developed and tested a cool flame generator which safely regenerates the particle filters at moderate temperatures. This unique feature allows for low-maintenance EGR systems to be installed on engines using Marine oils and other heavy oils.

The cool flame EGR system is a result of extensive R&D efforts since 2007 involving Marintek, Rolls Royce and German technology partners.

Thorough testing has been performed and today a solid proof-of-technology exists demonstrating the system's NOx reducing capabilities.

The cool flame EGR system is managed by an advanced control system ensuring correct amounts of exhaust gas are re-circulated under variable engine loads. As exhaust gas is led back to the combustion chamber, the amount of oxygen in the combustion process is reduced and accordingly the temperature of the combustion is lowered. This is the main factor for contributing to NOx emissions.

There is no need for additives or extra infrastructure. The system is self-managed and requires minimal maintenance.

