Market Update Note

30 March 2020

Introducing the LGIM-W principle

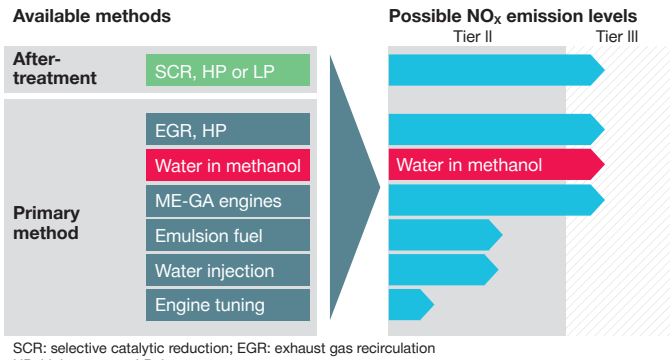
Tier III compliance of MAN B&W LGIM by combustion of water and methanol

In 2016, the first MAN B&W ME-LGIM type engines operating on methanol entered service. These engines have now accumulated more than 65,000 operating hours on methanol.

The diesel pilot injection of LGIM engines ensures a stable ignition and combustion of even very poorly igniting fuels. Through research, MAN Energy Solutions has now demonstrated that the pilot injection principle has further advantages as it enables combustion of water and methanol mixtures.

The operating concept is that the addition of water to methanol lowers the combustion temperature and thereby the NO_x formation.

The economic benefit of complying with Tier III NO_x emission levels by adding water to the fuel is that exhaust gas recirculation (EGR) or selective catalytic reduction (SCR) systems are no longer required, as illustrated in Fig. 1.



SCR: selective catalytic reduction; EGR: exhaust gas recirculation
HP: high pressure; LP: low pressure

Fig. 1: NO_x reduction methods

Tests have confirmed that it is possible to reduce NO_x emissions sufficiently to reach Tier III emission levels by running on methanol mixed with approximately 25–40% water and 5% pilot oil (diesel).

Recently, an LGIM-W engine operating according to the developed and further optimised concept has passed Tier III compliance tests and MAN Energy Solutions has obtained NO_x certification for the LGIM-W engine.

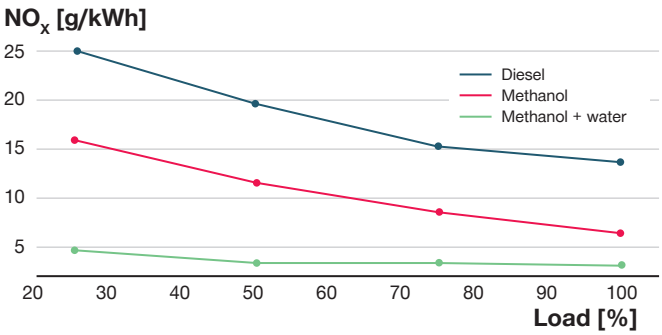


Fig. 2: NO_x reduction as a function of load

Please do not hesitate to contact our Two-Stroke Sales & Promotion department at kjeld.aabo@man-es.com for further information regarding this Market Update Note.

For more details:
MAN Energy Solutions
Teglholmsgade 41
2450 Copenhagen SV, Denmark
Phone +45 33 85 11 00
www.marine.man-es.com