MTU engines S4000 fulfill EPA Tier 4 final without exhaust gas aftertreatment

Dipl.-Ing. Steffen Harscher is Project Leader of Development S4000-05 at MTU Friedrichshafen GmbH (Germany)

Dipl.-Ing. Hermann Braun is Senior Manager of Design S4000 at MTU Friedrichshafen GmbH (Germany)

Dr.-Ing. Stefan Höttges is CFD Engineer for Turbocharging and Fluid Systems at MTU Friedrichshafen GmbH (Germany)

Dipl.-Ing. (FH) Andreas Mehr is Project Leader of Electronic Development at MTU Friedrichshafen GmbH (Germany)
Since market introduction in 1996, Series 4000 engines have consistently demonstrated their reliability over several million hours of operation in rail, mining, marine, power generation and oil and gas applications throughout the world. To ensure it can offer engines with even lower emissions in future, MTU has comprehensively reworked its Series 4000 units. Development of the new 12V, 16V and 20V configurations of its Model Type 05 units focused in particular on applications in the mining and oil and gas sectors. Utilising a unified technological concept for pollutant reduction, the company’s Series 1600, 2000 and 4000 engines operate without the need for any exhaust after-treatment – a unique achievement in this performance class.

**CHALLENGE TIER 4 FINAL**

U.S. Environmental Protection Agency (EPA) Tier 4 final exhaust regulations came into effect at the start of 2015. In the future, engines producing more than 560 kW will be limited to maximum NO\textsubscript{X} emissions of 3.5 g/kWh and particulate emissions of 0.04 g/kWh. This equates to pollutant reductions of almost 50 % for NO\textsubscript{X} emissions and 80 % for particulate emissions as compared with EPA Tier 2 exhaust gas specifications,