
Press release

Copenhagen, 2019-01-29

MAN Energy Solutions SE
Teglhølmegade 41, 2450 Copenhagen SV,
Denmarkwww.man-es.com

Group Communications
Nils Søholt
P +45 33 85 26 69
Nils.Soholt@man-es.com

New High-Pressure SCR for Two-Stroke Engines Lands First Reference

Uniquely, MAN Energy Solutions offers both SCR and EGR as NO_x solutions within two-stroke sector

MAN Energy Solutions has announced the very first order for its SCR-HP (Selective Catalytic Reduction – High Pressure) product. Mitsui E&S Machinery (MES-M) has ordered 3 x SCR-HP (cluster 3) units in connection with the building of three 87k-dwt bulk carriers. The engines will accordingly meet IMO Tier III emission standards.

Ralph Klaunig, Vice President, MAN Energy Solutions, said: “The MAN SCR-HP is the market’s most compact system. Regardless, it’s always challenging – and an important milestone – to land a first reference but we expect MAN SCR-HP sales to push on now as a result of this order. Crucially, we are now the only manufacturer capable of delivering both exhaust-gas after-treatment solutions: high-pressure selective catalytic reduction, and exhaust-gas recirculation – including an electrical turbo blower. This allows our two-stroke customers to choose their preferred option as best fits their situation. It is also another step towards a greener future for the shipping industry and global trade as a whole.”

Klaunig continued: “With this engine and turbocharger – both built under license by Mitsui – and the SCR-HP built in-house at our Deggendorf facility, MAN Energy Solutions can rightly call itself a supplier of complete solutions. As an original equipment designer and manufacturer, our product knowledge gives us the greatest competence to develop and fine-tune solutions to our customers’ great benefit.”

SCR-HP background

MAN Energy Solutions introduced SCR-HP along with licensee, MES-M, in 2017. The development of the new system is based on MAN’s in-house competence with four-stroke engines, for which it can already reference more than 650,000 operating hours.

The MAN SCR-HP is available for two-stroke engines and reduces – through internal catalytic reaction – NO_x exhaust emissions to IMO Tier III limits. With specially developed honeycombs and honeycomb materials, as well as an integrated mixing unit, the overall size of the reactor has been drastically reduced compared to typical market designs and its medium-speed counterpart.

NO_x solutions

Exhaust gas recirculation (EGR) is an internal engine process that prevents the formation of NO_x by controlling the combustion process, while Selective Catalytic

Reduction (SCR) is an after-treatment method that uses a catalyst and an additive to reduce the NO_x generated by the combustion process.

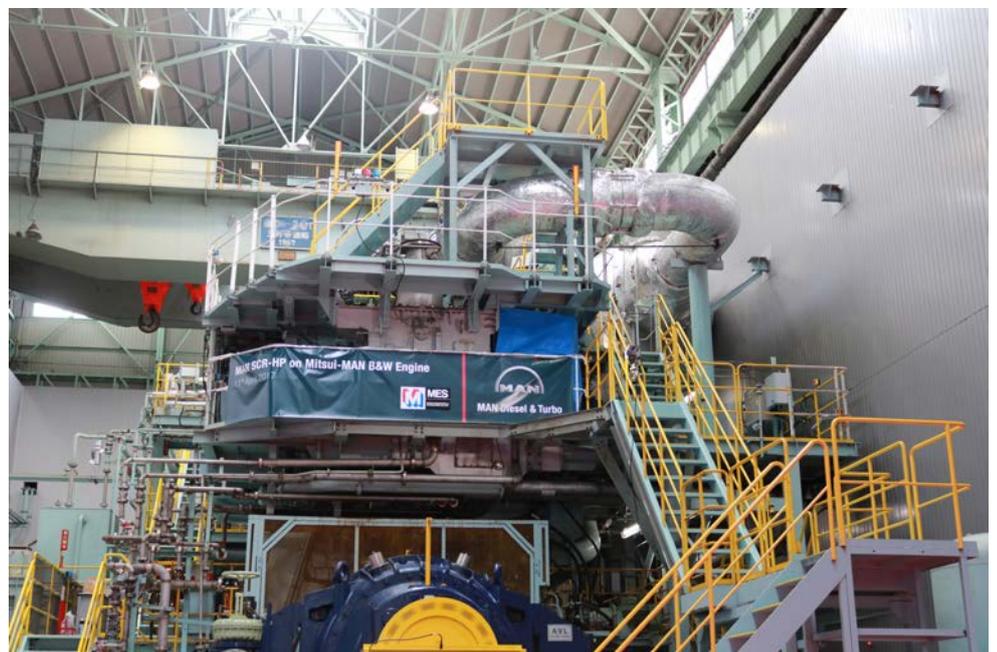
The MAN SCR-HP Series

The SCR-HP comes in six frame sizes, covering engines up to 25 MW with one reactor for the entire exhaust stream.

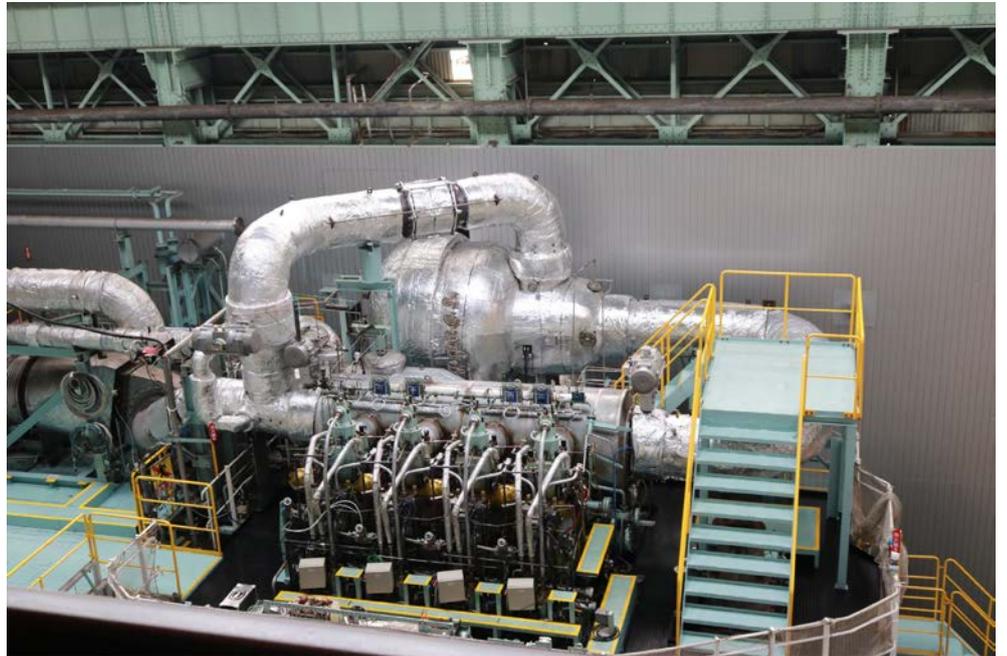
The SCR-HP system consists of the reactor – including mixing unit, urea injection lance, honeycombs and soot blowers – along with a module-based supply system, as well as the reactor's control unit that communicates with the engine-control system.

The SCR-HP system is available for Scheme A and Scheme B classification approval. Scheme A approval includes a certification of the complete system on the engine test bed, SCR and original piping.

Approval via Scheme B reduces complexity for all involved parties. The engine is tested in IMO Tier II mode on a test bed. MAN Energy Solutions then models the SCR system and calculates the Tier III mode. On the parent engine, this mode is certified on board during engine commissioning. This Scheme B approval is confirmed by several classification societies and reduces the test demands required of the engine licensee. The process is well established in MAN's medium-speed sector, and over 170 systems are already in the order book awaiting Scheme B certification.



The Mitsui-MAN B&W 4S50ME-T9 test engine hosting the new MAN SCR-HP technology



The SCR-HP reactor at Mitsui's Tamano works



Rendering of the SCR-HP reactor



Rendering of the SCR-HP reactor with a host two-stroke engine

	ME (3,5 % S)	ME (0,1 % S)	ME - GI	ME - GI(E)	ME - LGI
HP SCR	✓	✓	✓	✓	✓
LP SCR	✗	✓	✓	✓	✓
EGR	✓	✓	✓	✗	✓

Table showing the flexibility of the SCR-HP system



MAN Energy Solutions enables its customers to achieve sustainable value creation in the transition towards a carbon neutral future. Addressing tomorrow's challenges within the marine, energy and industrial sectors, we improve efficiency and performance at a systemic level. Leading the way in advanced engineering for more than 250 years, we provide a unique portfolio of technologies. Headquartered in Germany, MAN Energy Solutions employs some 14,000 people at over 120 sites globally. Our after-sales brand, MAN PrimeServ, offers a vast network of service centres to our customers all over the world.