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**Press release**

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## **PrimeServ to Retrofit Greenest-Ever SCR System for German Cruise Ship**

**Ultra-compact SCR (Selective Catalytic Reduction) system adapts to limited space and will meet exacting Norwegian emission standards; retrofit reflects general cruise-industry desire to move towards sustainability**

MAN Energy Solutions' after-sales division in Augsburg, Germany – MAN PrimeServ Augsburg – has developed an SCR solution that will be retrofitted aboard the MS 'Amadea', a cruise ship chartered by PHOENIX Reisen GmbH Bonn (Germany) and managed by BSM Cruise Services. Also known as 'Das Traumschiff', the Amadea is well-known in Germany as the main filming set for a very popular television series.

The retrofit devised by MAN PrimeServ Augsburg calls for the integration of two of MAN's SCR systems, one each into both of the Amadea's four-stroke MAN 7L58/64 propulsion-engines, to ensure maximum performance. Installation will begin in September 2021.

The retrofit reflects a general desire by PHOENIX to enhance its environmental friendliness and, more immediately, will enable the vessel to meet emission standards in the key Norwegian Heritage Fjord market. For the project, MAN PrimeServ prioritised keeping hazardous emissions to a minimum while maintaining engine performance and propulsion efficiency.

Alexander Schäfer, Head of MAN PrimeServ Turbocharger & Exhaust Gas Treatment said: "The concept of clean cruising is a major, coming trend within the cruise industry and the Amadea therefore runs on high-quality marine diesel-oil alone. With our SCR solution, PHOENIX and BSM are establishing themselves as trailblazers within the segment in terms of emission reduction. It is always a pleasure to be part of something extraordinary that benefits the environment."

Schäfer added: "We are currently experiencing an increasing number of requests from cruise and ferry companies that want to improve their green credentials and who desire to become sustainable without the need for legislation. We want these companies to know that we can support them, regardless of whether they intend to enter the Norwegian Heritage Fjords or not."

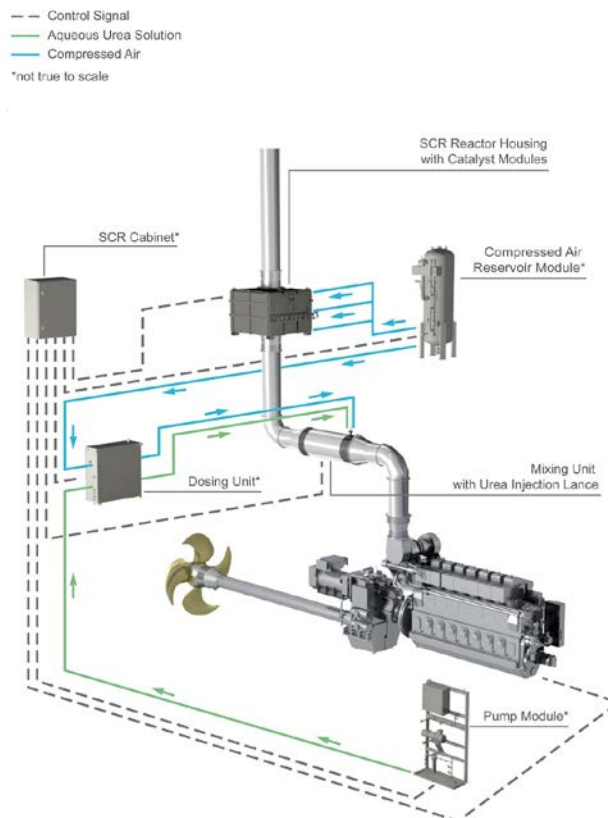
MAN PrimeServ Augsburg has previously retrofitted the Amadea's turbochargers – in the process improving engine efficiency and significantly reducing CO<sub>2</sub> emissions – and also introduced MGO instead of HFO injection nozzles in order to minimise black-carbon emissions. The combined work carried out on the vessel reflects MAN Energy Solutions' desire to increasingly become a supplier of complete propulsion solutions.

The MAN SCR solution will bring the Amadea's engines from Tier 0 status to Tier III emission level, and will reduce NO<sub>x</sub> emissions by 90%, equivalent to savings of 600 tons per annum. MAN's SCR system is the greenest solution available on the

market with the highest operational readiness and safety: the SCR will be available from just 15% engine load, enabling clean operation, also during slow-sailing in the fjords as well as close to port and populated areas.

The fully modular SCR solution will be integrated into the Amadea’s engine-control system. With its closed-loop system and a weather station that uses environmental data, the NO<sub>x</sub>-reduction rate is maximised and ammonia-slip minimised to just 10 ppm, comparable to that of a car. Low ammonia slip is not just good because ammonia is a greenhouse gas and affects the climate, but also because it reduces urea consumption, enabling the urea-tank size to be reduced.

A feasibility study run by MAN PrimeServ at the beginning of the project confirmed the suitability of the compact, modular SCR system for the limited space available aboard the vessel. Its integration into the narrow funnel is only possible due to the special 87cpsi honeycombs and their high reactivity in a two-layer slim reactor design.



*Illustration of the Amadea's SCR system*



*The Amadea*

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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.