



## **MAN Diesel & Turbo: Optimised train concept for nitric acid (HNO<sub>3</sub>) makes its way**

Oberhausen, Sept. 29th, 2017

### **Proven MAX1 axial compressor technology has entered the fertilizer sector**

MAN Diesel & Turbo has introduced a turbomachinery concept for the fertilizer industry which raises production efficiency of nitric acid to a new level. The heart of the concept known as NAMAX is a type AG-MAX1 axial compressor. This world's most modern technology for industrial axial compressors is thus expanding its success story to new sectors.

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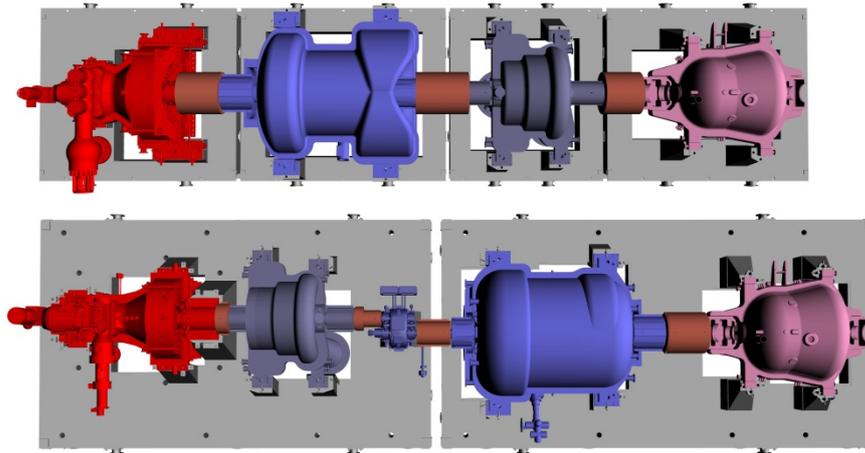
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A recent order for the NAMAX concept with MAX1 technology is now strengthening the leading position of MAN Diesel & Turbo in the multi-million market of machinery trains for the fertilizer industry. MAN Diesel & Turbo will supply a NAMAX train to end customer Grupa Azoty in Poland for the licensor Thyssenkrupp Industrial Solutions. Grupa Azoty will use the ultra-modern concept to expand its fertilizer production in Pulawy, in eastern Poland.

"Nitric acid is one of the most important feedstocks in the industry worldwide," explains Dr. Lothar Wallscheid, Vice President at MAN Diesel & Turbo in Oberhausen (Germany). "For the energy-intensive production process we have created a highly efficient train concept based on the MAX1 as air compressor. Among its many advantages, this means one thing in particular for the production of nitric acid: far greater efficiency with reduced investment."

While previous concepts used an intermediate gearbox to couple the machines in the train, the great advantage of the NAMAX concept is its direct drive, meaning there is no longer need for a gearbox. Compared to the machine trains to date, this allows efficiency to be boosted by several percentage points – at the same time allowing the energy input and the operating costs for HNO<sub>3</sub> production to be greatly reduced .

Besides the MAX1 as air compressor, the NAMAX concept consists of other proven machines: a centrifugal compressor for NOx compression, an MAN steam turbine and an MAN axial expander providing the drive power. The fact that all four machines come from a single source means that the complete train can be perfectly matched, allowing the demanding process of nitric acid production to be trimmed for maximum efficiency.



(MDT\_NAMAX\_comparison\_vergleich.jpg) More efficiency, more modular and a clearly smaller footprint: NAMAX concept (above) compared to the former MAN concept. From left.: steam turbine, air compressor, (gear box), NO<sub>x</sub> compressor, axial expander.

**About MAN Diesel & Turbo**

MAN Diesel & Turbo SE, based in Augsburg, Germany, is the world's leading provider of large-bore diesel and gas engines and turbomachinery. The company employs around 14,500 staff at more than 100 international sites, primarily in Germany, Denmark, France, Switzerland, the Czech Republic, India and China. The company's product portfolio includes two-stroke and four-stroke engines for marine and stationary applications, turbochargers and propellers as well as gas and steam turbines, compressors and chemical reactors. The range of services and supplies is rounded off by complete solutions like ship propulsion systems, engine-based power plants and turbomachinery trains for the oil & gas as well as the process industries. Customers receive worldwide after-sales services marketed under the MAN PrimeServ brand.