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GEA Marine Solutions: Reliability is at the focus

Düsseldorf (Germany), July 28th, 2016 – At the marine industry trade fair SMM 2016 (September 6th - 9th in Hamburg, Germany) GEA presents solutions for processing of fuel and lube oil. Under the umbrella of „seaprotectsolutions“ GEA focuses on environmentally-friendly techniques, as for example treatment of bilge and ballast water or oil and oil sludge treatment. Further exhibits are components for air conditioning and refrigeration technology. All solutions target on maximum availability and high efficiency, to ensure trouble-free operation and simple maintenance on sea. Interested visitors can get an impression of the wide-ranging portfolio for cruise ships, ferries, container ships, tankers, fishing vessels, tugboats and many other special ships for offshore purposes at the GEA booth (hall 3A, stand 214). The exhibits will include:

Separators for lube oil, fuel, sludge and bilgewater treatment – always well handled by GEA IO control

GEA's separators of the OSE series for fuel, lubricating oil and water treatment, cover the range with a throughput capacity up to 80 m³/h. Thanks to their many sizes, the separators can be chosen very precisely adjusted to the requirements, which has a positive effect on operating costs. In addition, all centrifuges are CFR-certified (Certified Flow Rate) for heavy oil treatment and approved by leading classification societies. In maritime applications, the



centrifuges convince with excellent separation efficiency and their service and maintenance compatibility. The latter is essentially due to the fact that the advanced design is based on a small number of components and performs with less wearing parts. They are also easy to operate even remotely as an option: The GEA IO control makes it possible to call the current status either via tablet or smartphone and to receive commands from there as well. This is as helpful for operators as for the service technicians on board. The control is deliberately designed according to the motto of "keep it simple". Rather than showing everything the control and the centrifuge can do, it focuses on what the user needs for his specific tasks. The operating interface is therefore self-explanatory and can be operated intuitively.

Fig. 1: Optionally remote access to the GEA IO enables operators and service technicians to have their centrifuge directly under control.

Ballast water treatment with the GEA BallastMaster marineX 150

In cooperation with Trojan Technologies, GEA offers the BallastMaster marineX for treatment of ballast water. The model which is presented at SMM, can process a throughput capacity of 150 m³/h and effectively disinfect organisms with an UV-radiation grade of 44%. The BallastMaster marineX needs no chemicals, since it combines an effective 32-µm filtration with subsequent UV radiation for disinfection in a single unit. This prevents the

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introduction of germs or organisms into foreign ecosystems during deballasting. The differential pressure-controlled back flushing filter and the wiper system in order to keep the quartz sleeves clean enable a steady disinfection and satisfy the IMO-requirements. The GEA BallastMaster marineX – thanks to filtration combined with UV-technology – supplies excellent process values, – particularly even river water with high sediment load. The unit also offers a compact design that is up to 50 % smaller than conventional systems. Its low energy consumption and the effective principle make it to the ideal option for any ship type.

Fig. 3: GEA BallastMaster marineX

Screw compressors of the GEA Grasso LT series – efficient and stable in all conditions

The GEA Grasso LT series is an example for the many high-sea-capable screw compressors by GEA. It combines high performance with a long service life and covers maximum displacement volumes from about 800 to 11,500 m³/h with 16 sizes. Resource-saving operation is made possible by features like the special 5/6-rotor profile or the sophisticated axle bearing that contributes to low play and therefore minimizes loss. The compressors are continuously adjustable in the range from 10 to 100 % of the nominal power and can optionally also be equipped



with a Vi slider with which the internal volume ratio can be modified. The low pulsation has a positive effect in full and partial load operation, which protects the compressor itself as well as the connected cooling system. The compressor is durable and service-friendly not only because of its excellent vibration characteristics in all operating conditions. But also on account of wear-free plain bearings with high load-carrying capacity and the extremely stable axial bearings that can be exchanged on site. Further equipment features include the power slider, ports for the economizer or pulsation control and many others.

Fig. 2: Screw compressor GEA Grasso LT

Permanently in operation: GEA piston compressors for marine use

High efficiency does not need to come at the expense of durability, as GEA proves, among others, with the piston compressors of the semi-hermetic series GEA Bock HG and the open type series GEA Bock F.

The F-series includes open, single-stage compressors with 2, 4 or 6 cylinders that are designed for common synthetic refrigerants (e.g. R134a, R404A, R507, R407C, R22). The maximum displacement volumes are 12,6 to 214,1 m³/h (1.740 1/min). They are optionally driven directly via a coupling or with a V-belt. Due to the high-volume oil sump as well as the reliable oil pump independent of rotating direction, the use in a wide speed range is possible. A stable drive, the successful mass compensation and the low pulsation contributes to the robustness

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and calm operation. The F-series runs without any problems even at short-term inclinations of up to 30° in both axes, making it perfect for marine use.

The semi-hermetic piston compressor HG44e represents a broadly set-up series of suction-gas-cooled compressors with maximum displacement volumes from about 6,5 to 337,5 m³/h (at 60 Hz). Therefore the series cover the whole refrigeration and air conditioning requirements on ships, from cabin cooling to provision cooling. The optimized semi-hermetic compressors benefit from a cutting-edge valve plate system, highly efficient electrical motors and an improved gas flow as compared to the predecessors.



Fig. 4/5: The piston compressors F16/2051 (left) and GEA Bock HG44e/770-4 S (right)

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About GEA

GEA is one of the largest suppliers for the food processing industry and a wide range of process industries that generated consolidated revenues of approximately EUR 4.6 billion in 2015. As an international technology group, the Company focuses on process technology and components for sophisticated production processes in various end-user markets. The Group generates more than 70 percent of its revenue in the food sector that enjoys long-term sustainable growth. As of March 31, 2016, the Company employed over 17,000 people worldwide. GEA is a market and technology leader in its business areas. The Company is listed in Germany's MDAX (G1A, WKN 660 200). In addition, GEA's share is a constituent of the MSCI Global Sustainability Indexes. Further information is available on the Internet at gea.com.

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