

„The 2-stroke propulsion engine“

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Abstract

Typical time between overhaul of 2-stroke main engine cylinder units has been in the range of 10000 to 15000 hours. This has been regarded as best practice in the shipping industry for the last 3 decades or so – a practice that has ascertained safe and reliable operation. The development of design and material technology in this period has significantly brought about higher outputs, improved reliability, lower emissions and cost efficiency. Examples are improved designs of the turbocharger, combustion chamber,



bearings, fuel system, lubrication system, piston rings and so on. There may still be challenges in certain areas, but all in all the gains have been considerable.

The manufacture of piston rings for the long two stroke slow speed diesel engines is a strange mixture of art and science whose final arbiter, the engine, is critical in its judgement of success or failure. Piston ring design is a delicate balance of practice and manufacturing techniques.

As the modern engine designers has come up with more and more powerful engine versions it has increased the demand of the rings, beside the TBO has to be increased a new SECA regulation is entering the market as well.

This results for example in that the use of coatings on the sliding surface and the ring side at the rings has more and more become a necessity.

Moreover as the rings are resting on the ring grooves, the condition and the design of the grooves are very important to make the rings last but it has also to be noted that a lot of the achieved ring temperature is transferred to the grooves. As a result of that the so called ring twist is important to avoid.