

Waterjet propulsion for Naval crafts



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NOTE that this is an extension and continuation of Paper presented at last INEC@IMDEX Asia 2015 seminar.

PART I

The fourth generation of stainless steel water jets is now launched under the name S4.

Now there are full scale results from the first unit in operation in a high-speed hard-loaded application.

The Paper will focus on extensive measurements and observation from expertise onboard vessel and detailed explain:

- Cavitation pattern in full scale was similar to CFD calculations but very different compared to model test. Why?
- Erosive and non-erosive cavitation.
- Flow observation and leakage/spray at steering nozzle and reversing bucket.
- Comparison between measured forces in hinge points, bucket pins and hydraulic cylinders. Full scale measurements compared to CFD and FEM calculations.
- How to confirm pump efficiency? Thrust measurements with uncertainties.
- Thrust breakdown measurements.

PART II

Developing Rolls-Royce Waterjet is highly driven by the naval requirements.

Further achievements been made since last presentation. This year, we will focus on low-magnetic propulsion and radiated noise.

What is required to drastically reduce magnetic signature? Can the complete units be zero-magnetic?

Vessel noise sounding can be divided in many sources. What is contributed by the propulsion? And what are the first steps to reduce noise?

It is fairly easy to reduce noise radiation to a certain level by simple steps. But how to do to optimisation for noise reduction?

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