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Amarinth moves one step closer to developing high efficiency centrifugal pump with Carbon Trust award

Amarinth, a leading company specialising in the design, application and manufacture of centrifugal pumps and associated equipment to the industrial, chemical and petrochemical industries has successfully completed Phase I in developing a new process for manufacturing impellers optimised for best efficiency point to better match pumps to the customer’s duty point. The work is being supported through a grant from the Carbon Trust of £160,000.

Today, Amarith moved one step closer to developing a cost effective and rapid process for the design and manufacture of bespoke best efficiency point (BEP) optimised impellers for use in industrial pumping applications as it completed Phase I of a project supported by the Carbon Trust. The work undertaken has also proven that being able to provide optimised impellers will reduce annual CO₂ emissions in Amarith’s target market by 17,000 tonnes by 2020 and 110,000 tonnes by 2050.

Amarinth is the lead organisation in the High Efficiency Centrifugal pump (HEC-pump) consortium working with Furniss & White (Foundries) Ltd and Pera Innovations Ltd. The project, which is due for completion in June 2011, aims to reduce impeller design lead time by 25% and impeller foundry pattern costs to 10% of current production methods with a lead time of less than a week. The resulting impellers will reduce energy consumption by between 10% and 25% compared to ‘fit-to-curve’ pumps.

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During Phase 1 of the project the consortium analysed four case studies of live contracts in detail. The case studies show the actual pumps sold operated between 4.5% – 16% away from the pumps BEP. The reason a “fit to curve” pump was originally sold is that it is not currently commercially viable to design an impeller for every customer’s specific duty point.

Following the evaluation of a number of software solutions, the consortium chose CF Turbo and ANSYS as the best packages for rapidly designing impeller vanes and volute cores and undertaking CFD analysis to accurately predict the curve shape of a pump along with its efficiency. Initial tests using these software packages show that the software based design lead-time provides savings of around 66% over conventional design lead times.

The four case studies also showed that if the consortium had been able to offer an efficient pump, rather than a standard one, carbon savings of 11,220 tonnes / year could have been achieved (or an average of 2,805 tonnes per pump) with potential total energy savings in the region of 24%.

Having demonstrated rapid and cost effective impeller design process is possible, the consortium will move onto Phase 2 of the project which is to develop commercially viable pattern equipment. This will be followed in Phase 3 with the production of prototype impellers which will then be production tested in Amarith’s new state-of-the-art test bay facility.

Oliver Briginshaw, Managing Director of Amarith commented: “We are very pleased with the outcomes from Phase 1 of the work which has proven that significant savings are possible by using optimised impellers and that technologies are available to reduce impeller design time significantly. We are looking forward to working on the next phases of this project with our partners in the consortium to bring to reality a significant reduction in the carbon footprint of pumps.”

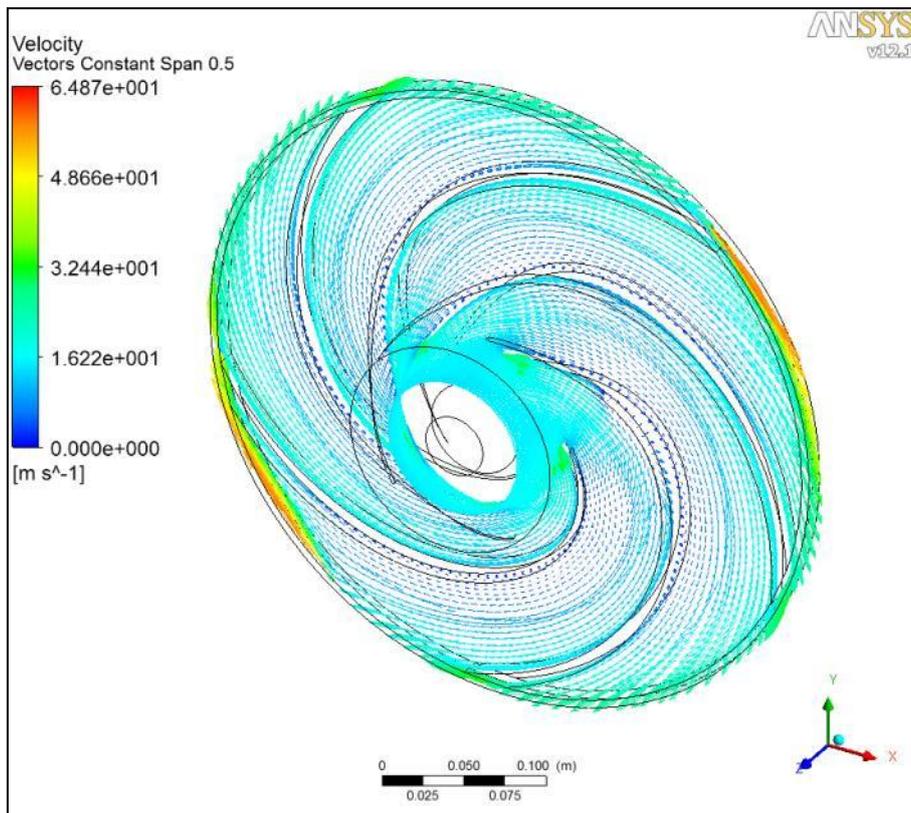
More information about the Carbon Trust can be found at www.carbontrust.co.uk

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OPTIONAL PANEL or BOX ITEMS



Designing the Amarinth API 610 VS4 Vertical Sump Pump



Analysing impeller performance during work in Phase I

NOTES TO EDITORS:

Founded in 2002, Amarith has harnessed the skills, creativity and passion of people who have worked in the pump industry for many years. Amarith delivers world-leading expertise in the design, application and manufacture of centrifugal pumps and associated equipment to ISO, ANSI & API standards, primarily for the industrial, chemical & petrochemical markets. Their portfolio includes:

- **Pumps:** Horizontal and vertical API 610 pumps, chemical and industrial pumps, many of which are interchangeable with the Girdlestone pump ranges, eliminating the need for expensive modifications when replacements are required.
- **Pressure Vessels:** Protect System Plan 52 and 53A and 53B sealant systems with inbuilt condition monitoring for pumps and mixers that are suitable for Safe area up to Zone I.
- **Spares & Service:** High quality, fast lead-time re-engineered spare parts to improve performance and extend pump life, including many which are directly interchangeable with the Girdlestone pump ranges.
- **Packages & Modules:** Condensate Recovery Units manufactured for Spirax Sarco incorporating the innovative Ci-Nergy intelligent variable speed control system, plus bespoke packages & skids built to order.
- **Business Systems:** state-of-the-art e-commerce technologies that deliver 24/7 support enabling customers to select pumps and place orders on-line and then track every stage of manufacture through to delivery, any time, anywhere in the world.

The company operates globally from its base in Rendlesham Suffolk, United Kingdom and has a customer base of world-leading companies, including BP, Shell, ExxonMobil, GlaxoSmithKline, Pfizer, Spirax Sarco, Diageo, AMEC, Fluor and Halliburton.

For further information, electronic copy or photos contact:

Comment:

Steve Buckley
Sales & Marketing Director
Amarinth Limited
Bentwaters Park
Rendlesham
Woodbridge IP12 2TW
United Kingdom

Tel: +44 (0)1394 462122
Mobile: +44 (0)7971 506 994
Steve.Buckley@Amarinth.com

Media Relations:

Phil Harland
B6 Solutions Limited
29 Swan Drive
The Wharf
Aldermaston
Reading RG7 4UZ
United Kingdom

Tel: +44 (0)118 971 3790
Mobile: +44 (0)7880 748380
Phil.Harland@B6solutions.com

Amarinth can also be reached on its website: www.amarith.com.

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