



press release

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Amarinth launch innovative API 610 VS4 vertical sulphur pumps designed specifically for the oil and gas industry

Amarinth, a leading company specialising in the design, application and manufacture of centrifugal pumps and associated equipment to the Oil & Gas, petrochemical, chemical, industrial and renewable energy markets, has invested over £1M in designing and launching a new reliable low-maintenance range of API 610 VS4 vertical sulphur pumps for the oil and gas industry.

Elemental (pure) sulphur is a valuable by-product recovered during the refinement of oil and gas and is sold on to be used in the manufacture of many products including fertilisers, chemicals, pharmaceuticals, asphalt and concrete. The sulphur is extracted and transported around the processing plant in liquid form at a temperature of some 140C. However, sulphur only remains in its liquid state suitable for pumping within a narrow temperature band of approximately $\pm 20\text{C}$. At lower temperatures the liquid will start to revert to a solid and at higher temperatures its viscosity actually increases due to the formation of polymers, all of which creates unique challenges for sulphur pumps. To date, many sulphur pumps have been simple adaptations of VS4 vertical pumps or other standard designs but these have brought with them maintenance and reliability issues for operators.

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Three years ago, Amarith decided to draw on its extensive expertise in designing bespoke pumping solutions for the oil and gas industry and apply this knowledge to produce an API 610 VS4 vertical pump that could meet the challenges of reliably pumping molten sulphur. Amarith first undertook a detailed study of existing sulphur pumps (usually simple adaptations of existing designs) and how they were used and maintained to determine where issues occurred. Users reported high incidents of bearing failures, shaft problems and having to run significantly shorter maintenance periods to try and minimize failures, all of which resulted in increased downtime for the plants.

To deliver a robust, reliable and easily maintainable pump, Amarith then embarked on an 18 month design and test study resulting in a pump which includes:

- A new arrangement for the shaft bearings and lubrication film which reduces the previous bearing and shaft issues operators had reported.
- Redesigned jacket to maintain the temperature of the molten sulphur and hence its viscosity, reducing the solidification of the sulphur around the pump particularly when it's lifted for maintenance.
- New design of impeller optimised for best efficiency for molten sulphur.
- Amarith's proven modular column design that enables the rapid production of bespoke pump lengths and greatly simplifies maintenance and removal of the pump.
- Improved access so that regular maintenance can be completed quickly and with less disruption to the associated pipework and plant.

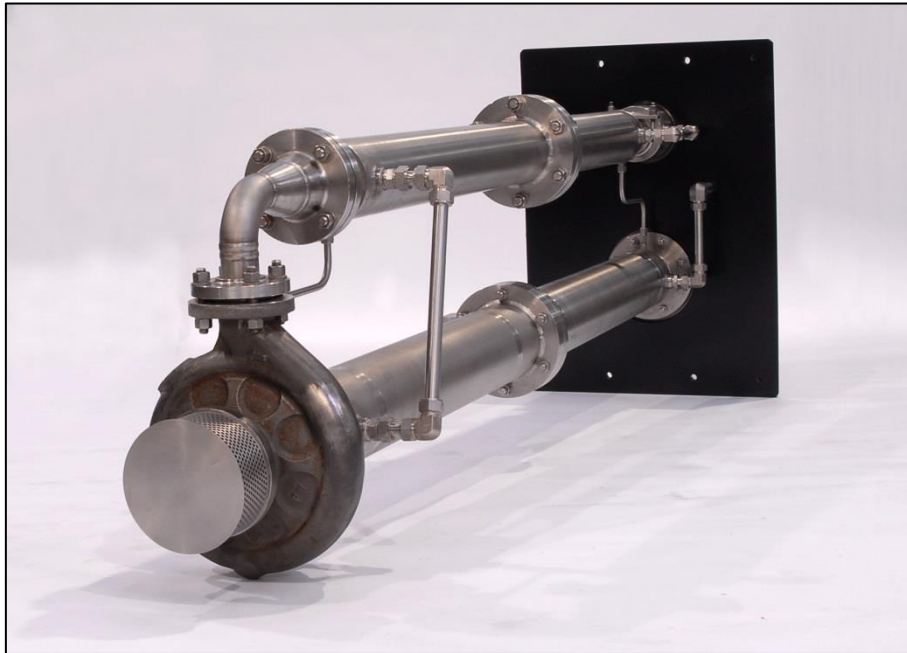
Following three years and an investment of over £1M, Amarith has now launched its new range of API 610 VS4 vertical sulphur pumps giving oil and gas operators for the first time a cost-effective, efficient and reliable pump for the transportation of molten sulphur from point of extraction to ongoing processing.

Oliver Briggshaw, Managing Director of Amarith, commented: “We are delighted to add these sulphur pumps to our range of pumps for the oil and gas industry. Drawing on our many years of experience with vertical pumps it is the culmination of three years research and development by our team of dedicated engineers and we look forward to leveraging the technologies we have pioneered on this project into other products to deliver even more effective pumping solutions for other applications.”

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OPTIONAL PANEL or BOX ITEMS



Amarinth API 610 VS4 Vertical Sulphur Pump

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.

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