

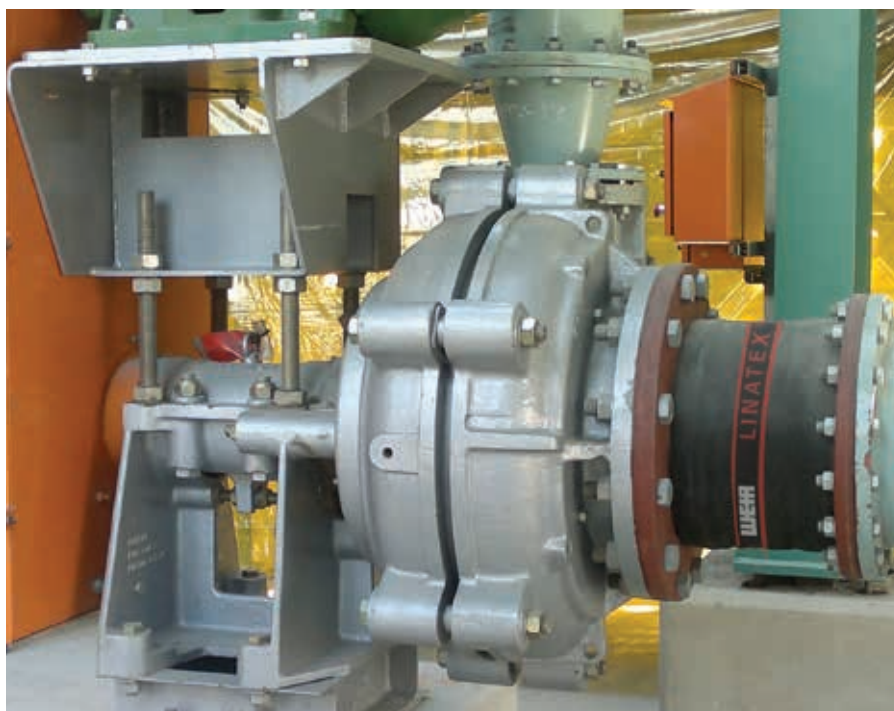
Mines convert to Warman froth pumps

The value of Weir Minerals' Warman® AHF pump range has been successfully proven at two mines in South Africa's Limpopo province – one in platinum and the other in phosphates – pumping frothy, high density and viscous slurries.

In some process circuits, handling froth can be challenging as froth will air-bind a conventional slurry pump. In froth applications, the Warman® AHF inducer impeller solves this problem, producing far less surging. The inducer impeller and oversized inlet enhance the movement of froth, high density or viscous slurries into the impeller, facilitating effective transportation. In addition, its higher efficiencies mean a smaller pump will deliver the required results.

At the platinum operation, a Warman AHF 2 pump was commissioned in early 2016. It has met the specified flow rate of 40 m³/h with no pump-related stoppages, repairs or replacements. A 12-month trial period showed that the unit saved the mine over R200 000 when compared to the cost of the competitor pump installed previously. Based on this, the mine replaced another eight competitor products with Warman AHF pumps, and has approved the Warman AHF 3 pumps as standard for all frothy applications at the plant's first flotation section, and Warman AHF 2 pumps for the second flotation section.

The Warman AHF pumps – with Hi Seal® expeller (dry gland) design – were also tested in a viscous slurry application at the phosphate mine for six months. They demonstrated they could continuously pump the high-density viscous underflow slurry at relative densities above 1,90. As a result, the



Warman AHF 6 pump with Linatex hose suction piece on a phosphate washing plant froth application.

customer purchased the pump and began upgrading all the remaining concentrate thickener underflow pumps to the Warman AHF pump technology.

This reduced the plant's operational costs significantly, reduced dewatering and concentrate moisture extraction operations, improved filtration efficiency and increased

concentrate throughput to the dryers. The Warman AHF pump also extended the underflow pumping boundaries and the overall reliability of the thickener underflow pumping system.

"The approach to solving any thickener underflow pumping problem must be based on a thorough understanding of the entire application, the mineralogy and rheological behaviour of the slurry," says Jacques Pretorius, Weir Minerals Africa's pump product development specialist.

Other field and laboratory tests have proven that the Warman AHF pump has largely overcome the problem of high-density viscous underflow slurries, with negligible effects on head at slurry yield stresses up to 200 Pa.

"Successful thickener underflow pumping projects are only achievable through involving a team of thickener engineers, pumping engineers and rheological consultants. Weir Minerals' pump trial campaigns confirm the successful operability of the Warman AHF pumps in viscous slurry applications," Pretorius concludes. □



A Warman AHF 2 pump saved a platinum mine over R200 000 during a 12-month period.

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