Randalls Gold Project
Warman® WBH® 100 Slurry Pump

Minerals

Case Study

Above: Warman® WBH® pump

Right: Installation of the Warman® WBH® 100 pump

Warman® WBH® 100 pump saves AU$114k p.a. in total ownership costs in tailings disposal application

INDUSTRY
Gold Processing

CUSTOMER
Silverlake Resources
Randalls Gold Project (RGP)

APPLICATION
Tailings Disposal

EQUIPMENT
Warman® WBH® 100 pump
Accumin® lubricators

Background

Randalls Gold Project (RGP) was acquired by Silver Lake Resources in January 2013. The mine is located 65 km South East of Kalgoorlie near Mt Monger Station in Western Australia. RGP's process capacity is 1.2 million tonnes of mineralised ore per annum.

The Challenge

Historically, RGP had run two competitor tailings disposal pumps through their operation. After rebuilding the pumps due to leaking mechanical seals, the wet ends ran smoothly for six months. However, the competitor pumps were ultimately oversized for the application and only operated at 58% efficiency with high solids recirculation, and the cost of spares and long delivery lead time were deemed unsatisfactory.

External engineers were employed by the customer to design a new tailings pipeline. The required minimum flow rate of 197m³/h necessitated a new 150 kW motor and Variable Speed Drive (VSD).

The Solution

Based on the duty point and speed of the pump, the Weir Minerals sales team specified the rubber lined Warman® WBH® 100 pump. A key feature of the pump is the single point adjustment device to rotate and axially move the throatbush, which is designed to minimise wear from recirculation between the impeller and throatbush. This is especially important in this application because of the fine particles in the slurry.

To minimise both cost and down time for RGP, the Weir Minerals team integrated the new WBH® pump into the existing operation. Weir Minerals developed a custom solution to extend the drive arrangement already in place in order to utillise the larger ZV2 drive arrangement.

To optimise the conversion, the Weir Minerals Services™ Centre designed, fabricated and rubber lined the intake and discharge spools for the WBH® pump. These custom spools ensure good flexibility and ease of maintenance.

The Results

The Warman® WBH® pump delivered the minimum head and flow rate of 197m³/h, the same as was delivered by the competitor pumps. After two months, the site began to operate successfully at the maximum flow rate (233m³/h).

Top: Warman® WBH® 100 pump delivered on site

Middle: Tailings disposal with a Warman® WBH® 100 pump and Accumin® lubricators

Bottom: Tailings disposal with a Warman® WBH® 100 pump in operation

The Results cont.

The Warman® WBH® pump, with Warman® Accumin® lubricators, and new mechanical seals, rubber liners and throatbushes installed, optimised pump wet end wear life on site which equates to savings of over AU$114,000 per year.

One year later, to further capitalise on the success of the application, RGP targeted an increased flow of 265m³/h. This was achieved by decreasing the pipeline by 460 metres, which saved 8 metres of head loss. In addition, higher reliability was achieved through the installation of a R55™ rubber throatbush in the WBH® pump, which was better able to manage the fine particles in the slurry.

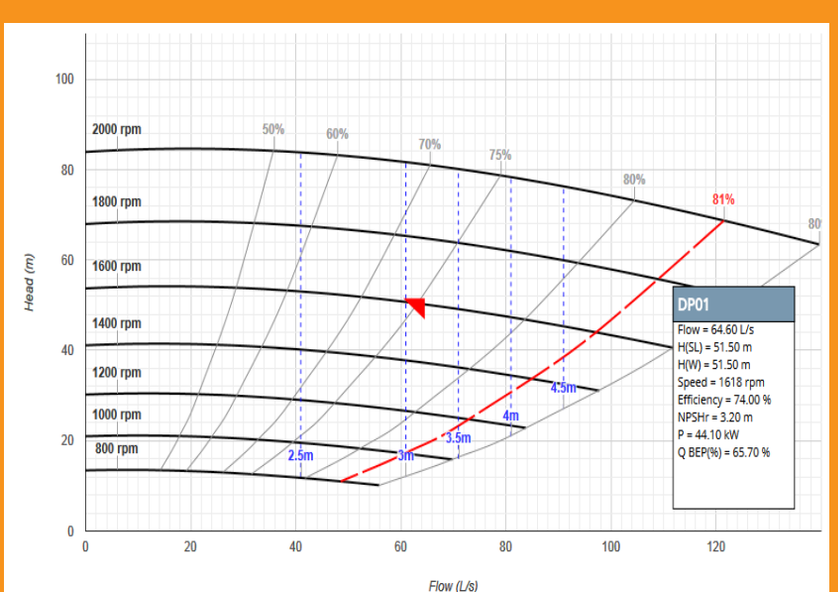
	Competitor Pumps	Warman® WBH® 100 pump	Warman® WBH® 100 pump after pipeline alteration
Flow Rate	197 m³/h	233 m³/h	265 m³/h
		+18% over competitor pumps	*+34% over competitor pumps*
Savings p.a.	-	AU$114,000	AU$114,000

The Product

The Warman® WBH® slurry pump range offers more than 20 enhancements to the state-of-the-art Warman® AH® slurry pump, including a fully adjustable and rotatable throatbush to more evenly spread the wear and maintain the pump in tip-top performance for longer periods.

Boasting a revolutionary one-piece frame for correct alignment of bearings, seal and impeller to front liner; as well as easier access for impeller adjustments, the WBH® pump was built with enhanced efficiency and operational savings in mind.

Warman® WBH® 100 slurry pump performance curve



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