

## SA HIPPO FOUNDER CELEBRATES 38 YEARS

### OF INNOVATIVE MANUFACTURING.

Hazleton Pumps International (Pty) Ltd previously known as Electro-Mech (Pty) Ltd was registered on 23 October 1979 with electrical and mechanical contracting being the main business activities of the company. Electro-Mech further expanded the business to include borehole drilling and the repair of pumps and electrical motors.

While specialising in the repair of electrical submersible pumps major design flaws were discovered on most of the submersible pumps being repaired as these pumps, in most instances, did not last more than three months and this led to the decision that the aim of the company will be to manufacture a reliable submersible pump in South Africa. The main cause of failure is the deficiency that the electrical winding of the submersible pump would overheat and burn out when the submersible pump runs dry as the liquid being pumped is required to cool down the electric winding.

The submersible pumps used in the mines were imported and not only were the spares parts required for repairs and maintenance very expensive but also difficult to source, having also to be specifically imported. Most of the imported submersible pumps are used for dewatering purposes in the mines and often there would be solids and acids present in the liquids being pumped which caused excessive wear of the pump casings and impellers a contributing to the high failure rate.

While doing quotations at the coal mines it was discovered that Hudaco Industries had previously manufactured a slurry pump range consisting of vertical and submersible slurry pumps in South Africa, which was discontinued. After negotiating with Hudaco Industries Electro-Mech (Pty) Ltd purchased the manufacturing facility and stock from Hudaco in August 1987.

Due to the pumps originally being designed in a town named *Hazleton* in Pennsylvania, USA, and in 1988 Electro-Mech (Pty) Ltd decided to form a subsidiary company called Hazleton Pumps (SA) (Pty) Ltd with the objective to focus on the marketing and sales of the vertical spindle and submersible slurry pump ranges.

The vertical spindle slurry pump range were economically manufactured in South Africa and sold successfully to the mining industry both locally and internationally.

The Namibian uranium mine, Rössing Uranium was supplied with a total of 20 vertical spindle pumps since 2000 and in 2014 a HIPPO model 200L vertical spindle slurry pumps mounted on a pontoon, which is used to pump back the acidic tailings water containing solids at a rate of 139 ℓ/s, at a 25m head manufactured from special stainless steel was sold to this mine.



A HIPPO vertical spindle pump mounted on a pontoon in operation at the Rössing Uranium mine in Namibia

In 2000 largest vertical spindle manufactured from a Nickel alloy was designed and manufactured in South Africa to pump liquids containing solids and phosphoric acids to operate at phosphate plant in South Africa



The HIPPO model 400 VNB vertical spindle pump manufactured  
From a Nickel alloy to handle phosphoric acids

In 2000 the Apatit Phosphate mine in Russia ordered the largest vertical spindle froth pump ever build in the world specifically designed, developed and manufactured in South Africa for their process plant.



The largest vertical spindle froth slurry pump in the world designed and manufactured in South Africa for a phosphate plant in Russia

In October 2013 AMBATOVY required a vertical spindle slurry pump that had the capability to pump acidic slurry at a duty of 63 l/s and at a head of 60 meters. HAZLETON PUMPS was requested to manufacture the required pump from a specialised Duplex Stainless Steel (known CD4CMu) as on an urgent basis and on completion the pump had to be flown to Madagascar.

In 2015 the experienced gained in supplying the local and Russian phosphate mines served HAZLETON PUMPS well when an Israeli client, Rotem Amfret Negev, required a vertical spindle pump to pump corrosive phosphoric acid containing solids. A HIPPO model 150L VBC vertical spindle pump manufactured from a specialised material, Sanicro 28.

However, the submersible slurry pumps could not be economically manufactured in South Africa in competition with the imported submersible pumps due to the physical size of the pump and since the submersible pumps were designed to operate at 60Hz power supply while power supplied in South Africa is at 50Hz.

The original designers of the submersible slurry pumps, in the USA, was approached to re-design the submersible slurry pump range to operate at a 50Hz power supply, but the request was declined and Electro-Mech (Pty) Ltd then decided to re-design the submersible slurry pump range to operate on a 50Hz power supply and incorporated specialised control systems that allowed the pumps to operate for a minimum period of 24 months without maintenance.

The electrical winding is also protected in such a way as to ensure that the electrical winding in the submersible pump can never burn out. Special materials were selected to enable the submersible slurry pumps to pump acidic liquids containing solids.

To clearly distinguish the USA pumps from the South African designed pumps the locally re-designed pumps were branded with a South African identity and the *HIPPO* Slurry Pump Range was born.

In the process of designing the *HIPPO* slurry submersible range the development of the flameproof submersible slurry pump range, that complies to IEC 60079-1:2005, was deemed to be the logical starting point as most of the submersible slurry pumps are used underground where in many instances methane gas is present. Hazleton Pumps manufactured its first submersible slurry flameproof pump in 1993 and the company continually researches ways to improve the safety features of the *HIPPO* Flameproof Submersible Slurry Pump range.

The next challenge was to develop the submersible slurry pump range specifically to pump corrosive liquids containing solids by using specific and specialised materials as coal mine water usually is contaminated with acid and the pumps required for these applications need to be manufactured from specialised materials such as Duplex Stainless Steels to be able to handle the erosion and corrosion when acidic liquids, containing solids, are being pumped.

The flameproof stainless steel submersible slurry pump range was first produced in 1995. Middelburg Mine Services, now known as Middelburg Colliery a section of South 32, purchased a total of 33 Submersible pumps manufactured from duplex stainless steel which are still in operation 22 years later.

In 2000, as a result of enquiries for high volume submersible pumps, the first medium/high voltage submersible pump range was designed and manufactured for a platinum mine in South Africa.



The largest medium voltage submersible slurry pump in the world was designed, developed and manufactured for a platinum mine in South Africa

Due to the successful operation of these pumps an enquiry was received from the oil sands project in the Fort McMurray area of Alberta, Canada and in 2005 the medium/high voltage; high volume flameproof power supply submersible pumps were exported to Fort McMurray.



The first two HIPPO submersible slurry pumps that were designed, developed and manufactured in South Africa to be exported to the oil sands mines in Canada

In 2014 HAZLETON PUMPS added the latest development in the *HIPPO* pump range when the world's first Flameproof High Voltage; High Head; High Volume; Submersible Pump designed, developed and manufactured using a single stage design. This pump range is manufactured from specific materials which enables the pumping of acidic liquids containing solids, consists of 5 models capable of pumping up to 350 l/s at a head of 200 meters with an installed power of 1200kW and can operate on both 50Hz and 60Hz power supply.



The HIPPO Flameproof Medium/High Voltage High Head; High Volume;  
Submersible Slurry Pump

The HIPPO Flameproof Medium/High Voltage High Head; High Volume; Submersible Slurry Pump range is the world's first and manufactured in South Africa with at least 98% local content.

All castings are produced by South African foundries and all manufactured components for the pumps are done in-house at the Hazleton Pumps facility in Centurion. The only components that are imported are bearings and mechanical seals.

Hazleton Pumps has been exporting the HIPPO Submersible Slurry Pump range to most international mining countries and currently more than 50% of the pump manufactured are exported.

To expand the international presence Hazleton Pumps has registered subsidiary companies in Canada and the USA. With the power supply being 60Hz in Canada and the USA in comparison to the 50Hz power supply in South Africa Hazleton Pumps has decided to send the HIPPO Submersible Slurry pumps in kit form to the USA and have the electrical winding, assembly and testing done in the USA. The pumps assembled in the USA will have a 65% South African content.