

## Solios Thermal instal water-cooling system in Sohar casthouse



Fives Solios water-cooling plant at Sohar Aluminium

Solios Thermal successfully completed the installation of the casthouse cooling-water system for the Sohar Aluminium Smelter in the Sultanate of Oman, in 2008. The scope of work included a complete casthouse cooling-water system layout, consisting of pumps, filters, interconnecting pipework, cooling towers and the plc system. With up to 60 °C ambient conditions, the cooling system for the three 30-tonnes-per-hr ingot casters utilises evaporative cooling towers to make use of the low relative humidity 'wet bulb' to achieve 35 °C water. This 48 MW cooling system also provides cooling to the auxiliaries and other cooling requirements and is used as the main cooling facility. (With water costing more than petrol, even the waste and blow down water is utilised for the paste plant water.)

The 30-tonnes-per-hr aluminium ingot casting machines each require 450 cu m per hr at 3 Bar constant pressure. At maximum cast rate, the water is heated from 35 °C to 45 °C and is connected, via a gravity return duct, to a common underground tank in the cast house. The heated water is pumped back to the outside hot wells using three variable-speed vertical shaft pumps through underground pipes extending some 600 m.

The return water is collected in two open 810 cu m per hr hot wells with up and over weirs to collect debris. The central area is fitted with rope skimmers to collect trace elements of oil. Sluice gates are arranged to enable cleaning of one

hot well whilst in production.

The hot water is pumped at a constant rate over three evaporative cooling towers (18 MW each) where it is cooled. Temperature is controlled at 33 °C ± 2 °C with variable-speed tower fans. The cooled water is collected in three cold wells positioned below the cooling towers. An overflow system is used to maintain a constant level in the cold wells; excess water overflows back into the hot wells. The cooled water is filtered and then pumped via separate underground pipes to each caster. All pressures, temperatures, flow rates and levels are monitored and controlled from a central computer with additional remote monitors in the casthouse.

Water quality with make-up and blow down rates are monitored and controlled in a stand-alone air conditioned room. A 10% by pass is pumped to two sand filters to 'polish' the water and maintain a clear and clean nature. Every 10 days or so, the sand filters are back washed and the debris collected is pumped through a vortex filter separating out the heavies with clean water returning to the hot wells.

The solution offered by Solios Thermal is environmentally friendly while being an energy efficient water-cooling system. This package extends Solios Thermal's scope in the casthouse and strengthens Fives Solios's position as a casthouse solution provider.

Reader Reply No.91

## EMAL set to create 1,100 jobs over next two years

Emirates Aluminium (EMAL) has confirmed plans to create 1,100 direct employment opportunities over the next two years, as the world's largest single site aluminium smelter schedules production to start in April 2010. This year,

EMAL will more than double directly-employed staff numbers and thus increase directly-employed staff numbers from 620 to 1,370.

Reader Reply No.92

## Rio Tinto Alcan plant in Kentucky signs long-term power contract

Rio Tinto Alcan has signed its long-term power contract for the Sebree smelter in Kentucky, USA, following an agreement on the terms and conditions of the Big Rivers "unwind" transaction. The new contract will secure power for Sebree's smelting operations through to 2023. Together with Century Aluminum's Havensville smelter, which is also included in the extended power contract, the new agreement will help employ approximately 1,200 people in Western Kentucky. These two smelters also create an estimated 3,500 indirect jobs in the region, equating to approximately US\$ 193 million in annual wages and salaries.

Furthermore, Rio Tinto Alcan's Sebree smelter spends US\$ 44 million annually on goods and services from regional vendors. In December 2005, Big Rivers Electric Corporation and E.ON U.S. announced their intention to return both operational control of Big River's power plants and ownership of the resulting electricity back to Big Rivers in what was commonly known as the "unwind" agreement. E.ON U.S. subsidiaries had been operating the plants since 1998 as part of a lease agreement to assist Big Rivers during a period of financial difficulty.

Reader Reply No.93

## SALMEC to supply cut-to-length line



Signing ceremony for the supply of a cut-to-length line to Indonesia: On the right hand side of the photograph is Mr Alim Satria, Managing Director of PT Alumindo, and Mr Jose M Gerardo, Director General of SALMEC

SALMEC, the Spanish subsidiary of the Italian SALICO organisation, has recently been awarded a contract by PT Alumindo, in Surabaya, Indonesia, for the supply of a cut-to-length line. This will process aluminium strip with a width up to 1,650 mm and a thickness of 3 mm.

The line will incorporate SALICO's patented Sheet-tronic eccentric rotary shear with a capacity of 200 cuts per minute. Commissioning of the line is scheduled to take place in September 2010.

Reader Reply No.94

## Hulett's Aluminium turns to Shell Lubricants

A South African company, Hulett's Aluminium, has achieved an estimated US\$ 27,000 in projected annual savings by working closely with Shell Lubricants to implement premium hydraulic oil, Shell Tellus S 68, across its hydraulic presses. The company had previously been using hydraulic oils supplied by various lubricant companies at its plant in Epping, Cape Town, which were causing continuous overheating of its presses, due to premature thermal breakdown of the lubricant and product oxidation. To

address these issues, the Shell Lubricants team recommended Shell Tellus S 68, a lubricant based on advanced "zinc and chlorine free" technology, which ensures exceptional performance in hydraulic fluid power transmission systems. Since using the lubricant, Hulett's Aluminium, has experienced a number of operational benefits including a decrease in top-up volumes and press overheating.

Reader Reply No.95