

Johnson Controls supply second round of York chillers for Implats' No 16 Shaft

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Johnson Controls has supplied two York YK centrifugal chillers to Impala Platinum (Implats) for the planned second phase expansion of cooling capacity for its No. 16 Shaft as it heads toward a depth of 1 650 m. The chillers will be installed by the end of August 2018 and the start-up of the extension is planned for September of the same year.

The surface air cooling plant for the No 16 Shaft was designed and established in 2008 by mine ventilation and refrigeration specialists Bluhm Burton Engineering Consulting (BBE), who were appointed by Implats to provide a turnkey solution that included the design, construction and commissioning of the overall refrigeration plant and air cooling system. Richard Gundersen of BBE says: "The cooling plant is designed to facilitate six chillers in total as production builds up and demand for cooling increases. The first two chillers, also York machines, were installed almost 10 years ago and we are now entering the second phase of the cooling expansion."

Russell Hattingh of Johnson Controls adds: "The two 7 MWR York YK chillers are newer models of the two York machines initially installed. They deliver improved performance and offer a wider operating envelope, while still meeting the Impala standard."

"BBE prides itself on its independent supplier approach when designing ventilation solutions. We select solutions that will meet the needs of the project. Cooling is mission critical for mining operations, so the requirement is for chiller solutions that are robust, reliable and efficient."

The cooling solution, including the first two refrigeration machines, the initial two condenser cooling towers, the complete spray chamber shells, and spray piping for the first phase of bulk air cooling was constructed in 2008. For the second phase, two new machines have been installed and two new cooling towers have been constructed. The new chillers will be operational by the end of September 2018, adding 14 MWR of cooling.

Gundersen notes: "We need air cooled to approximately 13°C on the surface so that the working areas, at a depth of 1 650m, are below the legal working limit. The virgin rock temperatures are 55°C at these depths, so cooling is vital for production. Water is chilled by the refrigeration machines and sprayed into the horizontal spray chambers. Axial flow fans force ambient air through the spray chambers and into the barrel of the main (downcast) shaft to reach the underground workings. With the added cooling capacity, Implats will meet the environmental needs of the workforce."

Implats has confidence in York chiller solutions. "The mine has used the York chillers across its operations for more than two decades, consistently selecting them for proven reliability. The custom requirements we build into the equipment for Implats has become a standard for mining solutions on the continent. We are pleased to be able to continue supplying Implats and are committed to ensuring our York chillers meet the stringent demands of specialists such as BBE and they get the highest level of support from our teams." concludes Hattingh.

The third and final phase of cooling will be rolled out in 5-10 years' time, increasing cooling capacity to 42 MWR.