

MechCaL to fit Innovative Fan Prototype for Vapour Compressor at AngloGold Ashanti

Pretoria, 14 July 2016: **Local fans and ventilation firm, MechCaL has been appointed by AngloGold Ashanti to install a prototype of a ground breaking compressor at their Mponeng mine.**

The fan will be installed as part of a vapour compressor which is an integral part of a vapour compression refrigeration plant at Mponeng. The fan in question will form a flexible blade compressor that leverages the outstanding strength of high end composite materials. The prototype has been in development since 2012. Refrigeration plants are generally required in deep level mining where underground rock temperatures exceed the legal limits and the air needs to be cooled down to acceptable working environment levels.

According to Michael Minges, Director of Operations at MechCaL, the use of carbon composites allows the product to be used in extreme operating conditions of high loads. The fan is also suited to applications in refrigeration plants and desalination plants.

MechCaL has become well known for their innovative designs and unique use of technology to manufacture fans for the mining industry. Their patented designs are coupled with the use of light weight composite materials to create fans that boast increased efficiency, operational and energy savings, and lower mean time between failures.

“The use of composites in these systems is a niche application and use of such materials allows us to re-engineer the vapour compressor and blades that can withstand the highly loaded application where each blade experiences loads of up to 70 tonnes. These are mainly due to centrifugal loading, as the fan of 2.4m outer diameter spins at levels of close to 3500 RPM. Some tricky design issues needed to be addressed with innovative and well-engineered solutions that address issues such as the blade tip speed crossing the sound barrier at 400m/s at 120°C and reaching speeds of 440m/s. It is also critical to ensure that during the operational running of the fan the natural modes of the structure do not get excited which makes the stiffness design of the fan blade material layout of vital importance” says Michael.

Heinrich Jacobs, Principal Engineer at MechCaL, comments that the vapour compressor fan prototype represents MechCaL’s innovation and technology driven offering through its unique design and the materials usage capability. “This product is highly innovative by virtue of the merging of various metallic and non-metallic materials together to form a coherent item that is finely tuned to perform exceptionally in a narrow operational band,” says Heinrich.

For MechCaL this project establishes a good base knowledge of highly centrifugal loaded composite structures for use in future development work and new products. Says Michael: “It establishes MechCaL as a supplier of these fans to the local market as well as to the international original OEM designer of this plant. Additionally, it strengthens our relationship with AngloGold Ashanti for future supply of MechCaL products.”

Installation is set for August 2016.

Visit www.mechcal.co.za for more information.

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About MechCaL:

MechCaL Pty Ltd was established in 2002 to design and manufacture industrial fans. The company has developed proprietary software that allows for high efficiency designs to address the much-needed green economy to reduce CO2 emissions to the atmosphere through using less energy while providing the same performance. At their manufacturing facilities in Pretoria, MechCaL focuses on developing specialised fans using advanced design tools and materials. Every fan is designed for a specific application tailored to suit the needs of each client by matching the required performance with optimised efficiency.

MechCaL has been awarded the prestigious Technology Top 100 award six times and has been a runner up four times. They have also won the Enabling Award from Frost and Sullivan. All of this success was garnered from reinforcing advances in technology to enable savings.

Visit www.mechcal.co.za for more information.

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