

FOR IMMEDIATE RELEASE

### Get Wise About Using Variable Speed Drives

The benefits of variable speed drives (VSDs) are making this technology a popular choice among users of electric motors; now, with the introduction of the WEG Insulation System Evolution (WISE®) to all WEG motor lines, customers have full assurance that all WEG motors are VSD-compatible.

“Not all standard electric motors are suitable to be used with VSDs,” says Fanie Steyn, manager rotating machines at Zest WEG Group. “The motor insulation systems are susceptible to insulation damage caused by the harsh switching frequencies and voltage peaks generated by VSDs.”

Steyn explains that VSDs use power transistors – typically insulated-gate bipolar transistors or IGBTs – for the switching process. To achieve the high frequencies necessary for switching, the transistors have to turn ‘on’ and ‘off’ to conduct current repeatedly at high speeds. This results in voltage pulses with a high dV/dt, or rate of voltage change over time.

“When squirrel cage electric motors are fed by these high frequencies, the voltage pulses – combined with the cable and motor impedances – may cause repetitive conditions of over voltage or voltage overshoots at the motor connection terminals,” he says. “This may degrade the motor insulation system and reduce the motor’s useful lifespan.”

To ensure that this does not occur in WEG motors, the WISE® insulation system has been developed through the use of enhanced materials in the production of the motor insulation. These materials include VSD-compatible wire, insulation film, impregnation material and suitable cables.

WEG has also specially developed its LackTherm varnishes for the insulation systems of its electric motors, which are applied to the 99,9% pure copper wire during the enamelling process. These LackTherm varnishes have excellent dielectric strength, flexibility, hardness and chemical resistance, as well as strong adhesion properties.

During the impregnation process, the stator coils receive layers of high-solid resins and water-based coatings which are environmentally-friendly and free from harmful solvents – as required by the ISO 14000 guidelines.

“This process allows any WEG motors to be used with VSDs, as the WISE® insulation system ensures that the motor windings are protected against voltage peaks and voltage variations,” says Steyn.

WISE PIC 01 : WEG WISE® insulation systems for electric motors

WISE PIC 02 : WISE® WEG Insulation System Evolution

WISE PIC 03 : WEG LackTherm varnishes for copper conductors

WISE PIC 04 : WEG LackTherm varnishes for copper conductors

WISE PIC 05 : WEG motors are VSD compatible

WISE PIC 06 : Is your WEG motor VSD compatible? Absolutely!

ENDS ... JANUARY 2018

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