Nidec Motor Corporation (NMC) is a leading man-ufacturer of commercial, industrial and appliance motors and controls. NMC's product portfolio features a full line of high-efficiency motors, large and small, that serve industrial, residential and commercial markets in applications ranging from water treatment, mining, oil & gas and power generation to pool and spa motors, air conditioning condensers, rooftop cooling towers and commercial refrigeration.

The Nidec flagship brand, U.S. MOTORS®, has a 100-year history and a strong reputation in industrial motors. The U.S. MOTORS brand is a bridge from a rich, solid past to a bright and expanded future. Today, Nidec Motor Corporation is committed to developing new technologies and products that help our customers solve problems, improve efficiencies and protect the environment.

Leading with a New Line of Inverter Duty Motors

A perfect example of how Nidec is leading the vertical motor industry is the recent introduction of a new line of stock Vertical HOLLOSHAFT® inverter duty motors with a bearing protection system to help mitigate bearing problems caused by shaft voltage.

The use of inverters in pumping applications has increased dramatically over the past few years. The combination of an inverter and induction motor with a pump produces an economical variable speed drive system that has the potential to provide energy savings and process optimization. It may also lead to improved system reliability.

Unfortunately, inverters can be tough on electric motors. Those used to supply adjustable frequency power to induction motors do not produce sinusoidal output voltage waveforms.

Most inverters use a control topology called Pulse Width Modulation (PWM) to change the voltage and frequency of the power applied to the motor. The switching frequency of the PWM control system generates steep-fronted voltage spikes that can damage motor insulation.

U.S. MOTORS was the first to recognize the need for special inverter duty insulation system and introduced our Inverter Grade® Insulation system. This system meets NEMA MG1 Part 31 insulation requirements for inverter–fed motors.

PWM inverters also generate common mode voltage, which may produce a shaft voltage. Shaft voltage can result in bearing currents that may damage motor bearings. Motors 40 horsepower and larger now include a shaft ground ring to short-circuit current that can damage bearings.

While the number of occurrences of bearing damage due to shaft voltage is small, the cost to replace failed bearings is high. Reducing these types of field issues not only benefits the end user, but the pump OEM as well.

Its new inverter duty motors are just one example of how Nidec Motor Corporation continues to

reinforce its reputation as a true innovator in the motor industry.

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