Vector

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Asynchronous motors of the DRN.. series

DRIVES & SWITCHGEAR

MECHANICAL TECHNOLOGY

CONSTRUCTION & INSTALLATIONS

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Energy-efficiency tip: Eliminate motor voltage unbalance

Degradation of service life and performance of 3-phase motors is caused by voltage unbalance. When a motor has an unbalance of voltage supplied to the motor terminals, the out-of-balance current is much higher than the voltage unbalance. The magnitude of current unbalance may be six to ten times as large as the voltage unbalance. This results in out-of-proportion pulsations; mechanical stresses; motor vibrations; increased operating temperature and reduced efficiency motor life. Voltage unbalance at the motor terminals should not exceed 1%. Unbalances exceeding 1% require motor de-rating and will void most warranties. Common causes of voltage motor unbalance include faulty power factor correction equipment; unbalanced utility supply and a transformer bank supplying a 3-phase load that is too large for the bank, among others. Assume that a 100 hp motor operating under full load conditions with the following specifications: 93% efficiency at 2,5% unbalance and 94,4% efficiency at nominal unbalance. If this motor is operated for 8000 hours per year with an unbalanced voltage of 2,5% and with energy priced at $0,08/kWh, the annual energy and cost savings after corrective actions can amount to $760.

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One controller for four electric actuators

In response to SMC Pneumatics' changing customer needs, the company has made it possible to control up to four electric actuators at once for single or multiple axes, using the JXC83 step motor controller. It offers several savings including equipment on cost, programming time, wiring and space. It is compatible with the majority of the actuators in SMC's LE range and uses minimum wiring due to a common power supply cable. Less I/O cable is required, further reducing overall cost. The JXC83 reduces labour time for increased productivity in the workplace and all four axes of this controller can be set with one connection, ensuring easy programming and minimal hassle. The JXC83 can move two axes with arc interpolation or three axes with linear interpolation at any one time, in certain conditions. It will benefit the general industrial machinery sector and is suitable for a range of applications such as pick and place, and vertical board lifting.

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